E/3593/Rev. 1

Economic and Social Consequences of Disarmament

UNITED NATIONS

Economic and Social Consequences of Disarmament

REPORT OF THE SECRETARY-GENERAL TRANSMITTING THE STUDY OF HIS CONSULTATIVE GROUP

Department of Economic and Social Affairs
UNITED NATIONS
New York, 1962

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ACTING SECRETARY-GENERAL'S PREFACE

This report was prepared by a group of experts appointed by the late Secretary-General, Mr. Dag Hammarskjold, under General Assembly resolution 1516 (XV) to assist him in conducting a study of the economic and social consequences of disarmament in countries with different economic systems and at different stages of economic development.

The members of the group acted in their personal capacities and their observations and recommendations were put forward to me on their own responsibility. I am convinced that their report represents a major step forward in the consideration of the economic and social consequences of disarmament and I am pleased to endorse their general findings. It is now my privilege to submit the report to the Economic and Social Council for its consideration and transmittal, along with its comments, to the General Assembly.

The members of the group were: V. Y. Aboltin, Deputy Director, Institute of World Economics and International Relations, Academy of Sciences of the Union of Soviet Socialist Republics; Mamoun Beheiry, Governor, Bank of Sudan; Arthur J. Brown, Head, Department of Economics, University of Leeds, England; B. N. Ganguli, Head, The Delhi School of Economics, India; Aftab Ahmad Khan, Chief Economist, Planning Commission, Government of Pakistan; Oskar Lange, Chairman, Economic Council, Council of Ministers of the Government of the People's Republic of Poland; W. W. Leontief, Professor of Economics, Harvard University, United States; José Antonio Mayobre, Ambassador of Venezuela to the United States; Alfred Sauvy, Director, National Institute of Demographic Studies, Government of France; and Ludek Urban, Economic Institute, Czechoslovakian Academy of Sciences. Mr. Sauvy was represented at the meetings of the second session of the group by Paul Paillat, also of the National Institute of Demographic Studies. Mr. Jacob L. Mosak, Director of the Division of General Economic Research and Policies of the United Nations Secretariat, served as Chairman.

In preparing the report the experts had available replies of Governments to a *note verbale* of the Secretary-General on the economic and social consequences of disarmament, which was sent in accordance with the unanimous recommendation of the group. Communications on the subject were also received from a number of the specialized agencies of the United Nations. The replies of Governments, together with the relevant information from the specialized agencies, are reproduced in part II of the report.

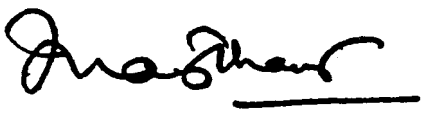
The group was assisted in its work by members of the Secretariat from the Department of Economic and Social Affairs at United

Nations Headquarters and from the Economic Commission for Europe, collaborating in accordance with that Commission's resolution 1 (XVI).

It is everywhere recognized that the problems of disarmament considered in the present report are among the most vital before the United Nations today. In dealing with its economic and social consequences the experts have adopted the assumption that disarmament, once agreed upon, would proceed rapidly and would be general and complete. They have reviewed the resources devoted to military purposes and the peaceful uses to which these resources might be put when released. They have examined the conversion problems that might arise and the impact of disarmament on international economic relations and on aid for economic development, and they have called attention to some social consequences of disarmament.

It is a source of profound gratification to me, as I am sure it will be to all Governments, that, on a subject that has until recently been so beset by ideological differences, it has now proved possible for a group of experts drawn from countries with different economic systems and at different stages of economic development to reach unanimous agreement. It is particularly encouraging that the Consultative Group should have reached the unanimous conclusion that "all the problems and difficulties of transition connected with disarmament could be met by appropriate national and international measures", and that "there should thus be no doubt that the diversion to peaceful purposes of the resources now in military use could be accomplished to the benefit of all countries and lead to the improvement of world economic and social conditions".

On behalf of the United Nations, I wish to thank the members of the group for their valuable contribution and to express my appreciation to the institutions with which the experts are associated for their willingness to release them from their normal duties so that they might undertake this extremely important task.



U THANT
Acting Secretary-General

LETTER OF TRANSMITTAL

to the Acting Secretary-General

We have the honour to submit herewith the study, *Report on the Economic and Social Consequences of Disarmament,* which we were invited to prepare in pursuance of General Assembly resolution 1516 (XV).

An outline of the report was prepared during meetings held in Geneva between 7 and 18 August 1961, and the report was drafted during meetings held at the Headquarters of the United Nations between 23 January and 16 February 1962. Mr. Jacob L. Mosak, Director of the Division of General Economic Research and Policies of the United Nations Secretariat, served as Chairman at both sessions.

We are happy to be able to present, for your consideration, a unanimous report surveying the nature and magnitude of the economic and social benefits and the problems of conversion arising from disarmament, together with the general lines on which the main problems can be solved.

In preparing this report we have drawn, among other sources, upon the replies provided by Governments to a *note verbale* which was sent by the Secretary-General in accordance with a recommendation of the group. We should like to express our appreciation for these replies: in view of their authoritative nature, they are a valuable source of information and we have included them in part II of our report.

The members of the Consultative Group wish to express their very profound gratitude for the valuable assistance which they received from the members of the Secretariat, without which their task could not have been completed.

Respectfully yours,

V. Abolțin B. N. Ganguli José Antonio Mayobre

Aftab Ahmad Khan

A. J. Brown Oskar Lange L. Urlanis

Wassily Leontief

United Nations, New York
16 February 1962

Editorial note

Volume II of this report, containing the replies of Governments and communications from specialized agencies on the economic and social consequences of disarmament, is being issued separately as an addendum to the present document, E/3593/Rev.1.

CONTENTS

INTRODUCTION

1. Realization that the disarmament issue is important—as important as the survival of humanity itself—is world-wide. This is exemplified by a resolution adopted in 1959 by the General Assembly in which the question is called "the most important one facing the world today", and in which hope is expressed that "measures leading towards the goal of general and complete disarmament under effective international control will be worked out in detail and agreed upon in the shortest possible time".[1] This sense of urgency springs mainly from the existence of a threat to mankind that has grown into one of mass destruction. But in part, also, it comes from the consciousness that the resources that make this threat possible, and many more resources devoted to less spectacularly destructive military uses, are being diverted from the tasks of lightening the burdens and enriching the lives of individuals and of society.

2. At the same time, it is seen that disarmament would affect individuals, countries and the entire world economy in many different ways. A substantial part of the world's labour force now earns its living, directly or indirectly, in meeting military demands. To redeploy this force for non-military purposes is an operation large enough to give rise to important problems of economic and social adjustment. Careful advance study is required for full advantage to be taken of the potential benefits disarmament could make possible. The following chapters attempt a survey of the magnitude of both the benefits it would bring and the difficulties that would have to be overcome in the economic and social fields.

3. In many respects the available data fall short of what is needed for a comprehensive and quantitative analysis. Nevertheless, the broad nature and magnitude of the economic and social benefits and the problems of conversion arising from disarmament, and the general lines on which the main problems can be solved, emerge sufficiently clearly from what is already known.

4. This Consultative Group on the economic and social consequences of disarmament has dealt with the subject on the assumption that disarmament, once agreed upon, would be general and complete and also rapid. It has done so in the belief that this was the intention of the General Assembly resolution under which it was appointed,[2] and also because this interpretation gives the clearest form to both the benefits and the difficulties, thereby minimizing the risk that the latter will be under-estimated.

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[1] See *Official Records of the General Assembly, Fourteenth Session, Supplement No. 16,* resolution 1378 (XIV).

[2] The text of General Assembly resolution 1516 (XV), under which the group was appointed, is given in annex 1.

5. The report represents the unanimous findings of the Consultative Group. It deals with the volume of resources devoted to military purposes and the peaceful uses to which these resources might be put when released, and with the transitional or conversion problems that would arise, both at the aggregate level of national production and employment and in particular sectors of the economy. The impact of disarmament on international economic relations is studied as well as the effects of disarmament on the volume and framework of aid for economic development. Finally, some social consequences of disarmament are considered.

CHAPTER 1

RESOURCES DEVOTED TO MILITARY PURPOSES

6. The most fundamental way in which disarmament affects economic life is through the liberation of the resources devoted to military use and their re-employment for peaceful purposes. This shift in the composition of the aggregate demand for goods and services is simply a large-scale manifestation of a phenomenon that is constantly taking place in all economies as the demand for certain goods and services shrinks while the demand for other goods and services expands; thus disarmament in its economic aspects should not be considered as a unique phenomenon. Short-term shifts in demand on an even larger scale than that which would accompany any agreed disarmament programme have occurred when economies have been converted to war production, or when they have undergone conversion to peacetime patterns of production at the end of the war.

7. It is important, however, that countries, in preparing to disarm, should take stock of the various resources that disarmament would release for peaceful uses. Such a survey would facilitate economic planning and adjustment at all levels, public and private, national and international.

8. To assess the transitional problems that may arise and to determine the peaceful uses to which the resources released may be put, it is necessary to ascertain in some detail the volume and composition of resources so released. An approximation to the volume of resources that would be liberated by disarmament is provided by the published official estimates of military expenditure.[1] On the basis of available data there appears to be general agreement that the world is spending roughly $120 billion annually on military account at the present time. This figure is equivalent to about 8-9 per cent of the world's annual output of all goods and services; it is at least two-thirds of—and according to some estimates may be of the same order of magnitude as—the entire national income of all the under-developed countries. It is close to the value of the world's annual exports of all commodities and it corresponds to about one-half of the total resources set aside each year for gross capital formation throughout the world.

9. The world's armed forces now number about 20 million persons. This figure does not include all those currently employed in supplying military goods or services directly to the armed forces or in producing the raw materials, equipment and other goods that are needed indirectly in the production of military supplies and services. The total

[1] Available data on military expenditures in the national budgets of countries are given in annex 2, tables 2-1, 2-2 and 2-3.

of all persons in the armed forces and in all productive activities resulting from military expenditure may amount to well over 50 million.

10. These figures demonstrate that the total volume of manpower and of other productive resources devoted to military use at the present time is very large indeed. The available data do not, however, make it possible to assess with the desired degree of accuracy the volume of resources that disarmament would actually release. For one thing, the existing estimates may not be comprehensive: some categories of military expenditure may be excluded. Further, there may be considerable inconsistency in the pricing of military output compared with the pricing of other production, as also in the relationship between the pay of the armed forces and civilian wages and salaries. For these and other reasons it would be wrong to interpret the share of military expenditure in total output as a precise measure of the real share of national resources allocated to military purposes, unless appropriate adjustments could be made for coverage, price differentials and other elements of incomparability.

11. Although the data provide an inadequate basis for precise comparisons of the military burdens among countries, it can be safely asserted that within most countries military expenditure accounts for a very significant proportion of total output. In many countries the estimates of military expenditure range between 1 and 5 per cent of gross domestic product, while in others, particularly in some of the larger countries, the corresponding ratio ranges between 5 and 10 per cent.

12. While the burden of armaments is wide-spread, the great bulk of the world's military expenditure is highly concentrated in a handful of countries. Available indications are that about 85 per cent of the world's military outlays is accounted for by seven countries—Canada, the Federal Republic of Germany, France, the People's Republic of China, the Union of Soviet Socialist Republics, the United Kingdom of Great Britain and Northern Ireland and the United States of America. Total military expenditure in all the under-developed countries amounts to about one-tenth of that of the industrial private enterprise economies. This means that although many under-developed countries devote significant proportions of their resources to military purposes, the great bulk of the resources released by disarmament would be concentrated in a very few countries.[2]

13. It should be noted that an agreed disarmament programme would involve alternate security arrangements. Thus, the recent joint statement of the United States and the Soviet Union on agreed principles for disarmament negotiations provided that "During and after the implementation of the programme of general and complete disarmament there should be taken, in accordance with the principles of the United Nations Charter, the necessary measures to maintain international peace and security, including the obligation of States to place at the disposal of the United Nations agreed manpower necessary for

[2] This is less true of manpower than of other resources, since the under-developed countries rely much more on numbers of men than on advanced and expensive armaments and equipment.

an international peace force to be equipped with agreed types of armaments".[3] While these arrangements would necessitate the continued allocation of funds and resources to military purposes, it may be assumed that these would be small in relation to current expenditure.

14. In order to formulate economic and social policies so as to take full advantage of the opportunities afforded by disarmament, it is necessary for the countries concerned to know in detail the possible alternative uses for the resources released. In general it can be said that the ease and effectiveness with which the various resources liberated by disarmament might be employed for peaceful purposes would depend on the extent to which the composition of the demand for additional civilian uses approximated that of the resources now devoted to armaments. Because of the relative immobility of some resources in the short run, systematic advance study is needed so as to minimize wastage in the transitional stage, though in the long run any country's industrial capacity can be adapted to meet the changing pattern of demand.

15. To prepare a list of the resources absorbed by armaments, it is desirable that each country should, at the appropriate time, determine the composition of military expenditure and estimate the productive resources that it absorbs. The latter calculation is straightforward with respect to certain components of military expenditure. The members of the armed forces, for example, constitute a labour supply that would otherwise be available for peaceful purposes. Similarly, those research facilities employed for military purposes which are adaptable to civilian research are readily identified. Other productive resources, however, are devoted to military use only in an indirect manner which may not be apparent at first glance. While it is clear, for example, that the labour and capacity in ordnance production are employed solely for military purposes, it is impossible to state, without careful analysis, what proportion of the manpower and other resources devoted to, say, coal mining are so employed. If ordnance factories use any coal, some portion of the productive resources of the coal mining industry are engaged, indirectly, in the production of armaments. But to take into account all the inter-industry relationships in a national economy in order to provide a complete picture of the resources absorbed for military purposes requires considerable statistical information and a thorough economic analysis of an economy's productive structure. The degree of elaboration with which statistics should be compiled and economic analysis performed for this purpose varies from country to country according to the complexity and size of the national economy. Analogous considerations apply to the determination of the amount of resources required directly and indirectly to satisfy alternative peacetime needs.

16. Data made available by a number of countries show that military production is highly concentrated in a few industry groups, notably munitions, electrical machinery, instruments and related products, and transportation equipment, including airplanes and missiles.

[3] See General Assembly document A/4879, *Joint Statement on Agreed Principles for Disarmament Negotiations,* submitted by the Soviet Union and the United States.

There is a similar concentration in the same industries of the employment resulting from military expenditure.[4] In most other industries military outlays account for a relatively small proportion of total demand. Industries dependent on military expenditure also have a high degree of concentration in certain regions and cities. While this pattern of concentration of output and employment is not necessarily characteristic of all countries, it appears to apply generally to the major military powers.

17. The situation is rather different in those countries that rely upon imports for their supplies of military goods or in which the major part of military expenditure is for the pay and subsistence of the armed forces, rather than for their equipment. In such cases, the resources devoted to military purposes consist essentially of manpower and foreign exchange. This is especially true of the under-developed countries. While disarmament would require all countries to make significant adjustments, the realization of the great potential gains from disarmament in under-developed countries would depend on a major intensification of efforts to promote economic development. Such efforts would be facilitated in so far as military spending were channelled to development expenditure and as scarce foreign exchange resources hitherto directly or indirectly utilized for military objectives were freed for development purposes; and still more to the extent that aid were forthcoming from the industrially advanced countries in the form of both capital equipment and technical assistance.

[4] See, for example, the reply of the Government of the United States of America.

CHAPTER 2

THE PEACEFUL USE OF RELEASED RESOURCES

18. There are so many competing claims for usefully employing the resources released by disarmament that the real problem is to establish a scale of priorities. The most urgent of these claims would undoubtedly already have been largely satisfied were it not for the armaments race.

19. The resources liberated by disarmament within any country could be employed in part to promote economic and social progress at home in part to expand foreign aid. The question of aid to under-developed countries is sufficiently important to warrant treatment in a separate chapter (chapter 6). The main civilian purposes for which the freed resources, whether domestic or foreign in origin, could be applied, may be classified as follows:

Raising standards of personal consumption of goods and services;

Expanding or modernizing productive capacity through investment in new plant and equipment;

Promoting housing construction, urban renewal, including slum clearance, and rural development;

Improving and expanding facilities for education, health, welfare, social security, cultural development, scientific research, etc.

Part of the gain from disarmament could also take the form of an increase in leisure as, for example, through a reduction in average working hours without a corresponding reduction in real income, or through an increase in paid vacations.

20. The various claims upon resources listed above are, of course, closely interlinked. A rise in personal consumption may necessitate new investment in industry or agriculture or both. Enlarged aid from the industrial to the under-developed countries may involve expanding capacity for the production of the goods that the latter countries need, notably capital equipment. As regards the under-developed countries themselves, if additional aid is to bring the greatest benefits, a larger volume of investment out of domestic resources is likely to be required; this would be facilitated by the release of internal resources through disarmament.

21. Since it can be assumed that the economy as a whole is highly flexible in the long run, the resources freed by disarmament could ultimately be used for any one or more of the purposes listed above, and in any combination. Labour can be retrained and, where necessary, can move to other areas. As old equipment becomes obsolete it can be replaced by new equipment oriented to new patterns of

demand. In the long run, there should be little difficulty in adapting resources to needs.

22. In the very short run, by contrast, the range of choice may be somewhat more limited. It takes time to turn swords into ploughshares or to make an office clerk or factory worker out of a soldier. Studies in some industrial countries have shown that the productive capacities released from military use would be much more immediately adaptable to the increased output of consumer durables and industrial equipment than to the production of houses, food, clothing or educational facilities. Thus, in the transition period, countries may wish to take into account not merely the unsatisfied needs for higher consumption, investment and foreign aid, but also the extent to which alternative patterns of new expenditure would take full advantage of the particular resources that disarmament would make available. It should, however, be borne in mind that some of the major military powers now have fairly comfortable margins of productive capacity available to them. In these cases it is unlikely that disarmament would generate many new demands that could not fairly readily be satisfied from available resources.[1]

23. In the centrally planned economies, even though they have generally been operating approximately at capacity, the transfer of industrial capacity and labour force to the production of goods for peaceful uses could be achieved in a relatively short time. This transfer could be readily achieved by measures formulated within the framework of the general economic plans which can ensure a desirable balance between demand and resources.

24. In the under-developed countries the principal resource released, apart from the purely financial, would be manpower, both skilled and unskilled. In some cases a significant proportion of industrial and transport capacity would also become available for other uses. In many there would also be considerable savings in foreign exchange. The effective utilization of released resources would depend upon the soundness and vigour of development programmes and the volume and character of aid received.

Personal consumption and productive investment

25. Among the alternative uses of resources released by disarmament, increased personal consumption might well absorb a large share. It is fair to suppose that even in the developed countries there would be strong pressure on Governments to raise the level of living. Disarmament would, in particular, offer an important opportunity to

[1] See, for example, W. Leontief and M. Hoffenberg, "The Economics of Disarmament", *Scientific American* (New York), vol. 204, No. 4, April 1961, pp. 47-55. An unpublished study made at the Department of Applied Economics, Cambridge, England, suggests that, if military expenditure in the United Kingdom ceased and were replaced in equal parts by increased private consumption, increased domestic fixed capital formation, and increased foreign aid, output would be reduced in only two out of nineteen sectors of the economy (military services, and ship, aircraft and railway vehicle construction) and would be required to expand in most others by between 3 and 6 per cent—the main exceptions being textiles (9 per cent increase) and motor vehicles (14 per cent increase).

raise incomes of low income sections of the population and to facilitate equalizing the rates of pay for men and women.

26. In most countries, however, not all the resources freed by disarmament would be allocated directly to consumption, no matter what the level of income might be. In the first place, a substantial portion of the released resources would be used for expansion of productive capacities because only such expansion can provide a firm basis for further increases in consumption. Ministers representing the countries of western Europe and North America recently set as a collective target the attainment during the decade from 1960 to 1970 of a growth in real gross national product of 50 per cent for all the countries taken together.[2] In the Soviet Union, according to existing plans for economic development, industrial production should reach, in the course of the present decade, a level two and one half times the present volume. A more rapid rate of growth would also enable countries with a higher degree of industrialization to contribute more effectively—through greater financial and technical assistance and through the widening of markets for exports—to the development of countries that are less advanced industrially.

27. Recent experience in both private enterprise and socialist economies provides a rough guide in judging how much additional investment a specific growth target requires. Among the industrialized private enterprise economies, it appears that during the nineteen fifties a country experiencing a 4 per cent annual rate of growth needed, on the average, to devote about 2 per cent more of gross national product to investment than did a country having a 3 per cent rate of growth.[3] In most of these countries, 2 per cent would constitute a very significant proportion of the resources disarmament would release. In the less developed countries which have low levels of income and saving, the utilization of released resources for capital formation must be considered vitally important.

Social investment

28. Social investment is an important alternative both to private consumption and to industrial and agricultural investment. Its claims rest partly upon the clear urgency of the direct need for improved social amenities, and partly upon the fact that growth of industrial and agricultural productivity is dependent upon developments in education, housing, health, and other fields. Since social investment has had to compete with military claims for state funds, it (like aid to underdeveloped countries) has probably been particularly affected by the armaments race. Recognition of the necessity to remedy the resulting deficiencies in the stock of social capital is wide-spread among countries at different stages of economic development and with different economic systems. There is no common measure of need according to which it is possible to add up, or to compare, the deficiencies in different fields of social investment or different countries. Nevertheless, the

[2] Organisation for Economic Co-operation and Development, Press Communiqué, OECD/PRESS/A(61)10 (Paris) 17 November 1961.

[3] For further details, see United Nations, *World Economic Survey, 1959* (Sales No.: 60.II.C.1), chap. 1.

importance of the subject warrants an attempt to set out the main relevant pieces of evidence.

29. In the United States the National Planning Association estimated at the end of 1959 the cumulative expenditure requirements for selected government programmes over the next five years.[4] These estimates were not intended to be precise but simply represented a summary of the existing programmes of development and improvement in various fields over the next five years. The significance of these estimates, which imply annual average expenditures of $66 billion, may be judged from the fact that the present spending of the Federal, State and local governments on all these programmes amounts to about $30 billion per year. It is therefore apparent that these programmes could absorb much or most of any resources released by disarmament.

30. In the Soviet Union the task has been set of achieving a sharp improvement in living standards within the next twenty years by raising the income of the population and also by expanding social benefits (education, health protection, social insurance, housing construction, etc.). As stated in an official document, "general and complete disarmament on the basis of an appropriate agreement between States would make it considerably easier to overfulfil the planned improvement in the living standards of the working people".[5]

31. It will be noted that the highest single figure among the programmes for the United States mentioned above is that for *urban renewal and development,* including slum clearance, low-cost housing and community redevelopment. The problem of urban renewal is worldwide. In 1950 about 80 per cent of the world's population was still living in rural areas. Between 50 and 60 million people are being added to the world's total population every year, mainly to its urban areas. In Asia as many as 500 million persons may be added between 1950 and 1975 to the population of cities with over 20,000 inhabitants. In Latin America, sixty-two cities with over 100,000 people accounted in 1960 for some 40 per cent of the region's total. In Africa a considerably higher rate of growth is taking place in urban areas than in rural areas. Rapid urbanization is characteristic of Europe and North America.

32. The rural and urban environments in many countries are both deteriorating, mainly under the impact of this rapid growth. The social

[4] National Planning Association, *Looking Ahead,* March 1960. The estimates covering the next five years were as follows:

	($ billion)	
Education		30
Classroom construction	16	
Current operation	14	
Highways and skyways		75
Urban renewal		100
(Slum clearance, low-cost housing and community redevelopment)		
Water supply and conservation		60
Health and hospitals		35
Other programmes		30
(Air pollution, research and development, etc.)		
TOTAL		330

[5] *Programme of the Communist Party,* adopted at the 22nd Party Congress.

and physical symptoms of this deterioration are bad housing, poor community services and delinquency, the paralysis of city traffic, and in many of the less developed countries an absence of sanitation accompanied by a high incidence of communicable disease. In many metropolitan cities of such less developed countries "squatters' settlements" already contain a considerable part of the population.

33. The magnitude of the resources required for dealing with the problem of urbanization is very large. In India alone, for example, approximately $1 billion a year will be required to house the new inhabitants of cities with over 100,000 people. The provision of city-wide services, utilities and transportation would at least double the needed investment. In Latin America it was estimated by the Organization of American States in 1954 that an annual investment of $1.4 billion was required over a period of thirty years to wipe out the housing backlog, to replace obsolescent dwellings and to provide homes for new households. According to rough estimates by the United Nations Bureau of Social Affairs, as many as 150 million families in the less developed countries are in need of adequate homes. These immense requirements are contributing in many under-developed countries to the maintenance of a level of spending on housing and urban development such that the pressing claims of directly productive sectors have to be curtailed.

34. In the Soviet Union a housing shortage still exists despite the building of dwellings for nearly 50 million people in the last five years. "The housing problem remains acute. The growth of the urban population in the Soviet Union during the past few years is considerably in excess of the estimates."[6] In order to overcome the shortage and house every family in "a separate, comfortable apartment", an increase in twenty years of about 200 per cent would be required in the existing housing facilities. To reach this goal it is required that average annual housing construction be raised from the target of 135 million square metres in 1961-65 to 400 million square metres in 1976-80.[7]

35. Another field in which the supply of social capital is deficient in many countries is *road and air transportation.*[8] The rapid increase in the stock of automobiles and the lag in road facilities in these countries during the post-war years have been accompanied by extraordinary congestion and numbers of accidents. Airports and other air facilities are also deficient in many under-developed areas as well as in some more advanced economies, and investment in civil aviation will claim a share of the resources freed by disarmament.

36. The *development and conservation of natural resources* provides another important field for increased outlays in the event of disarmament. In the United States it has been estimated that Federal

[6] N. Khrushchev, *Report to the 22nd Congress of the Communist Party* (Cross Currents Press, New York, 1961), p. 118.

[7] *Report on the Programme of the Communist Party,* delivered to the 22nd Party Congress; Soviet Booklet, No. 81 (London, 1961), p. 47.

[8] Even countries as industrially advanced as the United States may have such a deficiency. For example, the second largest figure in the National Planning Association estimates cited in the footnote to paragraph 29 is for highways and skyways.

expenditure requirements up to 1980 in the field of water resource development alone total almost $55 billion, while $173 billion will be needed for non-Federal programmes.[9] The Soviet Union could advance the preparation and implementation of a number of important nature-transforming projects in various parts of the country in order to improve living and working conditions for the people. There is, for example, a plan to divert part of the waters of the Pechora, Vychegda and Ob Rivers into the basins of the Volga and the Caspian and Aral Seas. This would bring about a considerable change in the climate and in living conditions in Central Asia and in the southern European part of the Soviet Union. In under-developed countries there are also many important multipurpose schemes for the conservation and the utilization of water resources.

37. The world's demand for water is growing much more rapidly than the supply, and a continuation of present trends implies a growing deterioration in the balance of demand and supply. Increasing supplies of water are needed not merely in order to keep pace with the rapid rise in population, but also in order to meet the still faster growing needs for irrigation and industry. In many countries most of the cheapest source of supply for water have already been tapped, so that further expansion of supplies necessitates increasingly heavy investment in obtaining access to other sources, including the purification of sea water.

38. Other urgent requirements for natural resource development and conservation exist in the fields of forestry, soil and watershed conservation, rangeland conservation, park and recreational development and fish and wildlife conservation. In the United States the total Federal cost of proposed programmes in these areas over a period of ten years implies an annual rate of almost $4 billion, or almost twice the current rate of expenditure. In addition, scientific research and investigation in the field of natural resources will have to be expanded at considerable cost. In western Pakistan a master plan has been prepared for soil reclamation and conservation in order to combat the twin menaces of water-logging and salinity. The cost during the next ten years is estimated at $1.2 billion.

Investment in health, education and social services

39. Another major use of the resources released from disarmament is investment to raise standards of health, education and social services. There is an urgent need for improvement in *health services* throughout the world. In many countries the ratio of doctors, dentists and other medical personnel to the population is inadequate and even falling, and there are also great deficiencies in the supply of hospitals and hospital beds as well as of other basic health facilities. The backlog that many countries have to make up in order to attain the best current levels of hospital facilities is very large. In some of the poorer countries of Europe, for example, the medical facilities available to each doctor have been estimated to be as little as one-fiftieth of those prevailing in the better equipped countries. Yet even in the richest countries there is great need to improve standards of medical services. In Canada and

[9] See the reply of the Government of the United States of America.

the United States, for instance, the deficit in hospital beds has been estimated at from a quarter to a half of the existing number.[10] In underdeveloped countries the need for improved medical care is obviously greater. This is indicated, for example, by infant mortality rates in excess of 100 per 1,000 in many of these countries as opposed to rates of 20 to 30 per 1,000 in economically advanced countries.

40. An indication of the magnitude of investment requirements for medical care may be gained from projections for the United States. The present rate of construction, plus a limited programme of renovation, modernization and increase in rehabilitation facilities, would require at least $15 billion over the next decade instead of the $9 billion that would be needed if such changes were not carried out.[11] In the Soviet Union it has been officially suggested that hospital accommodation might be increased by 40 per cent (that is, by several hundred thousand beds) at low cost by converting into hospitals part of the buildings now in military use.[12]

41. In most developed countries *educational needs* are rising and are bound to expand even more rapidly; with the ever wider spread of technical progress there will be a rising premium on a higher educational background, on better scientific and technological skills and on a broader range of knowledge. At the same time greater efforts will be directed towards reducing the drop-out rate of the less talented and towards ensuring that an increasing proportion of the highly talented reach upper levels. The realization of all these purposes would imply the devising of new kinds of education and provision of adequate means so that people keep abreast of the latest developments in knowledge.

42. In the United States, existing standards currently require an expenditure level of $20 billion for school enrolments in kindergarten through twelfth grade, and of $6.7 billion for institutions of higher education. Projections on this basis alone indicate for 1970 a rise of 50 per cent in the first case and of more than 250 per cent in the second case. In a disarmed economy it would also be easier to meet the demands for better standards of education.

43. According to recent estimates, western Europe's expenditure on education may rise from $9 billion in 1958 (including both current and capital outlays) to over $18 billion, on a high estimate, in 1970—an increase of over 100 per cent.[13] As a result, outlays for education may rise from 3.2 per cent of gross national product to 4.0 per cent. Western Europe would also face important problems at the university level if a target were set for raising the European enrolment in the 20-24 year age group from 5 per cent as at present to the United States ratio of over 20 per cent.[14]

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[10] Royal Commission on Canada's Economic Prospects, *Housing and Social Capital* (Ottawa, 1957), and annual reports of the United States Department of Health, Education and Welfare (Washington, D.C.).

[11] See the reply of the Government of the United States of America.

[12] Embassy of the Union of Soviet Socialist Republics, Washington, D.C., Press Department Release No. 66, 2 February 1960.

[13] Organization for European Economic Co-operation, *Targets for Education in Europe*, by Svennilson, Edding and Elvin, p. 105.

[14] Dewhurst, Coppock, Yates and Associates, *Europe's Needs and Resources*, (New York, 1961) p. 343.

44. In the Soviet Union general and polytechnical secondary (eleven-year course) education for all children of school-going age is to be introduced in the next ten years. It is planned that the number of students resident in boarding schools and extended day-care schools should increase from 1.5 million at present to 2.5 million in 1965. The shortage of space in schools has led to using the building facilities in shifts; but teaching on a shift basis is expected to stop completely in the near future. Besides the extension of secondary school facilities, it is estimated that the present enrolment of 2.6 million students in higher educational establishments will triple by 1980.[15] All these developments will require construction of many more schools and training of a large body of teachers, both of which would be facilitated by disarmament.

45. In the under-developed countries, the magnitude of the educational problem may be seen from the fact that most of them still have illiteracy rates of well over 50 per cent of the population aged fifteen years and over. The cost of educational requirements in under-developed countries for education is exemplified by a recently adopted African programme.[16] On the basis of inventories of educational needs of the countries covered by the African plan[17] the total cost of the programme is expected to increase from $590 million in the first year to $1,150 million in 1965, $1,880 million in 1970 and $2,600 million in 1980. It is assumed that the share of national income devoted to education will rise from 3 to 4 per cent between 1961 and 1965, and thereafter will increase further, reaching 6 per cent of national income by 1980. This means that the difference, amounting in the same years to $140 million, $450 million, $1,010 million and $400 million, respectively, would need to be covered by foreign aid.

46. Apart from needs in the fields of health and education, there are urgent requirements for expansion in *social services.* Even in the most advanced countries, there are pronounced shortcomings in the provision of child welfare services, vocational rehabilitation agencies, community centres and other special services.

47. It is thus clear that, so far as social investment is concerned, there is already a heavy backlog of urgent need, and the recent acceleration of population growth and of technical change make it certain that the need, and the demand, will grow. Social investment therefore is likely to claim an increasing volume of resources, to which disarmament would make a welcome contribution.

Scientific research for peaceful purposes

48. The release of scientific and technical manpower would be one of the important consequences of disarmament. Amongst the major

[15] Based on information in *Report on the Programme,* op. cit., p. 66, and N. Khrushchev's *Report,* op. cit., p. 122.

[16] United Nations Economic Commission for Africa and United Nations Educational, Scientific and Cultural Organization, *Outline of a Plan for African Educational Development* (UNESCO/ED/180); and *Final Report* (UNESCO/ED/181).

[17] The plan covers only thirty-five States and territories of Africa. It excludes, in particular, the countries bordering on the Mediterranean and the Union of South Africa.

powers a significant part of the national research and development effort currently serves military purposes. The total elimination of military spending would bring about a sizable release of resources for civilian research and development. With disarmament it would thus become possible to encourage programmes of basic scientific research in fields which have hitherto been neglected, and to mobilize great scientific potential for the solution of some of the world's greatest problems in such areas as medicine, urban development and reorganization, and the technical problems associated with the economic development of under-developed countries. If human ingenuity, in the space of a very few years, has so vastly increased man's powers for destruction, it should be able to make an equally massive contribution to peaceful and constructive achievement.

49. Not all of the needs described above can be satisfied by single nations acting alone. In some instances their satisfaction will require international co-operation.[18] Serious gaps exist in the permanent world-wide network of meteorological observing stations and in the corresponding telecommunication facilities, and a marked increase is required in the funds available for basic research on improving meteorological services. Furthermore, the funds currently available for assisting meteorological development in the less developed countries are far less than needed to satisfy current demands, not to mention prospective demands. Telecommunications are important to developing economies and there is need to pursue a number of objectives in this field, including the development of networks. There is also considerable scope for international co-operation in developing the world's air transport facilities.

50. Disarmament would also open up possibilities for joint international ventures of an even more ambitious kind, including the utilization of atomic energy for peaceful purposes, space research, the exploration of the Arctic and Antarctic for the benefit of mankind and projects to change the climates of large areas of the world. Joint research into the earth's interior may lead to discoveries that would be of real value to the whole world. In addition, joint projects to assist the development of under-developed countries as well as programmes of co-operation in the social and economic fields could be undertaken. These international projects could have a major impact on world living standards and civilization.

51. It is evident from the foregoing illustrative discussion of the magnitude of current and impending needs that the resources freed by disarmament would not be large enough for the many claims upon them. Though it would take active decisions by Governments in the light of national and international needs to set in motion the necessary programmes for employing the released resources, it seems abundantly clear that no country need fear a lack of useful employment opportunities for the resources that would become available to it through disarmament.

[18] For communications received from specialized agencies of the United Nations on matters discussed in these paragraphs, see volume II of this report (E/3593/Rev.1/Add.1).

CHAPTER 3

THE IMPACT OF DISARMAMENT ON NATIONAL PRODUCTION AND EMPLOYMENT

52. Disarmament would raise both general problems of maintaining the over-all level of economic activity and employment and specific problems in so far as manpower or productive capacity might require adaptation to non-military needs. Structural problems of conversion of the latter type will be discussed in chapter 4. Successful maintenance of the level of aggregate demand, production and employment would facilitate the solution of specific structural or frictional problems. Conversely, economic policies which dealt smoothly and effectively with the structural or frictional problems would help to promote the solution of the general problems. In both cases, careful preparation would be required to ensure that the various stages of the disarmament process were accompanied by as little disturbance of economic life as possible.

53. In the economic life of all countries, shifts in the pattern of demand and in the allocation of productive resources are continually occurring in response to changes in technology, foreign trade, consumer tastes, per capita income, the age distribution of the population, migration, and many other factors. Some industries grow more rapidly than others, while the output of certain industries may even decline in absolute terms. Such shifts involve a transfer of manpower and capital between occupations, industries and regions. The reallocation of productive resources which would accompany disarmament is in many respects merely a special case of the phenomenon of economic growth.

54. There are, however, some aspects of the process of disarmament which would raise problems significantly different from those that have been experienced in the usual process of economic growth. While many of the continuous changes in the composition of demand work themselves out only over a long period of time, it seems reasonable to assume that disarmament, once decided upon, would occur more rapidly—over a period of only a few years. For some components of military demand, the whole of the shift might occur within a very short period of time such as a single year. The reallocation of resources attendant upon disarmament would therefore pose some special problems. The more rapid the rate of growth of an economy, however, the easier it would be to bring about the economic changes disarmament might require.

55. The conversion of resources that would be required as a result of disarmament at the present time would be far smaller, in the aggregate, than that which took place at the end of the Second World War. Thus an examination of the early post-war conversion may help to give perspective to the present problem. The experience of the

smaller-scale conversion that followed the end of the hostilities in Korea also deserves consideration.

The post-war conversion

56. The post-war conversion was a much larger one and involved a more rapid transfer of resources than total disarmament would require at present. During the last years of the war, the world devoted about one half of its resources to destruction. The real military expenditure and the number of people in uniform were about four times as high as today. The extent of devastation in the areas overrun by armies or bombed from the air was immense. The usual network of trade both within and between countries was thoroughly disrupted. Despite these difficulties, huge armies were quickly demobilized without a significant rise in unemployment in most countries, and the pace of recovery, particularly of industrial output, was impressively rapid.

57. During the post-war conversion, the major concern of economic policy was to restrain, rather than to maintain, over-all demand. This period was characterized by intense pressure of excess demand for both consumption and investment. Most commodities were in short supply. Their distribution was carried out nearly everywhere with the aid of rationing or at least under a system of price controls. The wartime accumulation of liquid savings in the hands of the population guaranteed a high level of continued effective demand. As plant and equipment were released from war production and repaired or replaced, they were immediately turned to producing goods for which demand had remained unsatisfied or deferred in some countries during nearly fifteen years of the Great Depression and the war. Most of the demobilized manpower found employment in civilian occupations, while the total labour force declined, reflecting a voluntary withdrawal of some women, minors and veterans from the labour market. As supply conditions improved, price and distribution controls were progressively eased.

58. There were large arrears not only of consumption but also of investment. The capital stock had in many countries been run down by destruction, obsolescence and lack of maintenance. Technological progress had continued and in fact sharply accelerated in some fields during the war years. But much of it had remained unincorporated in plant and equipment—during the depression because of lack of effective demand, and during the war because of diversion of resources to wartime needs. Residential construction had undergone successive postponement in some countries. These factors led to an upsurge in business and residential investment after the war, financed in part by the accumulated liquid resources of corporations and of consumers and in part by various forms of public assistance.

59. In the *United States,* by the end of the Second World War, the military budget had accounted for over 40 per cent of the gross national product. Between 1945 and 1946, expenditure on national security was reduced by 80 per cent. The decline in military expenditure was equal to one-third of the gross national product and nearly two-thirds of personal consumption in 1944. By way of comparison it may be said that the military budget in the United States in recent years

has been somewhat less than 10 per cent of the gross national product and about 15 per cent of personal consumption.

60. The decline in total real demand was less than half the drop in military spending because of the advance in all other sectors of demand. The small decline in national output was perhaps no more than could have been expected as a result of voluntary withdrawals from the labour force and from the shortening of working hours.

61. The sharpest increase took place in gross private domestic investment which rose from $21 billion to $51 billion—or from less than 6 per cent of gross national product to about 15 per cent. The rise in consumption also contributed in absolute terms nearly as much as investment, although its relative contribution was not so large. There were also increases in public expenditure for civilian purposes and in net foreign investment. Assistance through UNRRA, other grants and credits to various countries for relief and rehabilitation helped toward a substantial expansion of United States exports. Thus the economy showed a high degree of flexibility even in the relatively short run.

62. Between August 1945 and June 1946, the size of the United States armed forces was reduced by over 9 million men. There was a small reduction in the labour force as women and minors returned to home and school, and veterans continued their interrupted education. As a result of this, and of the cutting back of overtime, unemployment in 1946 remained below 4 per cent of the labour force, despite the very extensive and rapid demobilization.

63. While the large backlog of demand of private business and consumers was responsible for much of the ease with which the post-war adjustment was made, effective government policies also helped. Taxes were reduced. There was a very great increase in transfer payments, principally veterans' cash benefits and payments related to the veterans' training and education programme. As a result, despite the massive decline in military spending, disposable income fell hardly at all. As regards investment, a large veterans' loan programme helped to finance the purchase of homes and farms, quick settlements were made to business on termination of war contracts, and an easy credit policy was maintained. The Government of the United States of America notes that:

> "Tried measures such as these would be under active consideration again in the event of the acceptance of a disarmament program."[1]

64. In *western Europe* the conversion process took somewhat longer than in the United States because of the damage or destruction to productive facilities and the fact that the total output had in many cases fallen below pre-war levels. Inflationary pressures were severe. Confidence in currencies was shaken. Many key products, notably coal, steel, certain imported materials, and foodstuffs were in short supply.

65. Despite these difficulties the conversion was relatively rapid. Eighteen months after the cessation of hostilities, industrial output had recovered its pre-war level nearly everywhere except in the Federal Republic of Germany and in Italy. The demobilized armed forces were

[1] See the reply of the Government of the United States of America.

rather quickly absorbed in employment in civilian occupations. Except in the two countries just mentioned, unemployment declined well below pre-war levels. The recovery of western Europe was assisted by a considerable amount of external aid.

66. In the United Kingdom, it is estimated that at the end of the war, 9 million persons, or 42 per cent of the total working population, were either in the armed forces or engaged in the manufacture of equipment and supplies for them. Sixteen months later, the total number in these two categories had fallen by almost 7 million. Of this total about 1.2 million corresponded to a voluntary decline in the labour force, while involuntary unemployment rose by about 0.7 million. Thus over 5 million people were absorbed into civilian employment in the short space of sixteen months, whereas the corresponding number that would have to be absorbed in the event of disarmament now is just over 1 million. It is noteworthy that the number unemployed at any one time never greatly exceeded six or seven weeks' release at the maximum rate reached, and that it stood at this level only so long as releases continued at a substantial rate. Even so, unemployment remained below 4 per cent of the labour force.

67. In some of the *under-developed countries,* the post-war recovery presented special problems. This was partly because agriculture, which formed a much larger proportion of the output of the under-developed than of the developed countries, was generally slower to recover than was industry. The long years of war had led in many cases to heavy exhaustion of farms and livestock and to disturbance of trading patterns. There was a world shortage of fertilizers, and recovery was also delayed in many cases because initially inadequate industrial, transport and mining equipment had been strained beyond its rated capacity during the war. For some time after the war, too, delivery of equipment was delayed by conversion and re-equipment needs in the industrial countries.

68. There is, however, no reason to believe that any future disarmament would be attended, in the under-developed countries, by the same types of problem as prevailed after the Second World War. As indicated previously, the main question in these countries would be whether development programmes could be enlarged and stepped up significantly—and in sufficiently good time—to permit the absorption of the demobilized armed forces and other resources into productive employment.

69. In the *Soviet Union,* experience of conversion immediately following the Second World War was significantly different from that in other countries, because of the much greater destruction and devastation which had taken place during the war. Much equipment had been damaged or was in a bad state of repair. Plant and equipment constructed during the war had been designed entirely for military purposes, and was therefore somewhat less "convertible" than facilities constructed in peace-time. Superimposed on all this was the problem of transferring workers in the eastern territories—who had been evacuated from areas occupied by the Germans—back to their home districts in the western part of the country. For all these reasons there was a decline in industrial production from 1945 to 1946, concentrated in the producer goods

sector. Since some manpower had to be employed in tasks for which it was untrained there was a decline in output per man. These developments, however, were the result of the devastation and dislocation referred to above. The subsequent recovery was very rapid and by 1948 industrial production was already nearly one-fifth above the 1940 level. The circumstances of any future disarmament would be much more favourable to a smooth conversion process than those at the end of the Second World War.

70. In other *eastern European* countries the conversion process had also to overcome heavy human and material losses caused by the Second World War. In Poland alone, over 6 million people perished during the war and Nazi occupation. The respective Governments had to face the great damage caused to productive capacity, transport and housing, apart from dislocation of populations, monetary disturbances and other difficulties. Recovery was facilitated by the planned direction of the process of reconstruction and readjustment which was made possible by the gradual nationalization of banking, of most industry and of transportation. The recovery proceeded relatively quickly, so that in 1948 in most countries the pre-war level of production was surpassed.

Conversion after the Korean war

71. In the United States at the end of the Korean hostilities many of the special features associated with demobilization after the Second World War were no longer present. Military spending fell from $62 billion (in 1960 prices) in 1953 to $51 billion in 1954. This was accompanied by a liquidation of inventories that in part was associated directly with the fall in military expenditure itself, and in part reflected some business uncertainty regarding the immediate outlook for demand. The total decline in the national product, however, was less than half the reduction in military spending, largely because of increases in consumption and domestic investment. The latter, in turn, were made possible by a reduction in taxes and a policy of monetary ease which was particularly important in stimulating expenditure on housing. Unemployment, after rising to 5.6 per cent of the labour force in 1954, declined to less than 4.4 per cent in 1955 in the face of further cutbacks in military spending.

72. Characterizing the effectiveness of policies during this period, the Government of the United States of America observes that:

> "Despite the mildness of the 1954 recession it now is clear that fiscal and monetary policies might have been applied with more vigor. The reason they were not is that the decline in defence spending following the Korean War was not treated by the policy makers as a major demobilization requiring strong compensatory action. For this reason the 1953-1954 period does not provide a significant guide to the behavior of the American economy in a disarmament program during the 1960's."[2]

73. In other countries, for which information is available, the degree of involvement in the Korean war was not such that its end provided experience of comparable relevance for the purpose of this study. With the cessation of hostilities in Korea, however, there was

[2] *Ibid.*

a diminution of international tensions which brought about reductions in military expenditure and releases from armed forces in various countries. No significant problems of reabsorption of the demobilized personnel arose in these countries.

Experience in the centrally planned economies

74. The experience of the centrally planned economies in reducing the armed forces is also of interest. In the Soviet Union, the armed forces were reduced from 5.8 million men in 1955 to 3.6 million men in 1958.[3] There were also reductions in military forces in other centrally planned economies during that period. No significant problems were created by the demobilization in these countries since the demand for labour was continually increasing. Discharged officers were absorbed in administrative posts in industry or agriculture and were provided with opportunities for retraining at government expense. In a number of countries in eastern Europe, expansion in output of durable consumer goods was greatly facilitated after 1954 by utilizing the equipment which had earlier been devoted to producing armaments.

Impact on national production and employment

75. National experience with general economic policies during previous conversion periods will unquestionably be valuable for policy makers in the future. In adopting a programme of general and complete disarmament, Governments would certainly wish to assess very carefully the probable impact of disarmament on national production and employment, and to examine their economic policies to ensure that these were as well thought out as possible. It would be important to maintain a high general level of domestic demand for goods and services and thereby to support satisfactory levels of output and employment. This is already a well-established objective of national policy, but it would have additional urgency both during the conversion period and also in the long run, after general and complete disarmament had been achieved.

76. The economic measures needed to maintain over-all effective demand are different in the private enterprise economies from those in the centrally planned economies. In the latter, economic decision-making is centralized. Most of the productive capacity is government-owned. The national economic plans are directed toward the achievement of a set rate of growth and higher levels of living. In the private enterprise economies, on the other hand, where the private sectors are much larger than the government sectors, the power to make economic decisions is diffused. Governments must therefore rely heavily, in influencing economic decision-making in the private consumption and investment sectors, on relatively indirect means such as fiscal and monetary policies. In general, the governments of under-developed countries cannot count as readily as those of the more developed countries on an expansion of private investment. Greater attention needs

[3] There was a government decision for a further reduction to 2.4 million men in 1960. Statement by Prime Minister Khrushchev reported in *Pravda*, 15 January 1960.

therefore to be given to undertaking whatever volume of expenditure may prove necessary in the government-owned sector in the underdeveloped countries.

77. Much attention has already been given in the *industrialized private enterprise economies* to the methods by which total effective demand can be maintained. Member countries are pledged under the United Nations Charter to maintain full employment. A number of Governments have further undertaken in national statements of policy to adopt measures toward that objective. The instruments available for the prevention of any substantial shortfall of demand are well known. Their relative merits, however, vary widely from one country to another and from one time to another because of differences in institutions and attitudes.

78. The nature and magnitude of the task of maintaining total demand at an adequate level to assure the fullest possible employment would depend to some extent upon the purpose to which the resources released from military use were applied. In some cases, it might be decided to use the released resources by reducing taxes on income, particularly of lower income groups. In others, it might be decided to reduce the burden of indirect taxes on mass consumption goods borne mainly by the lower income groups in the community. It might, also, be seen fit to adopt fiscal measures designed to stimulate investment expenditure. In yet other cases importance might be attached to reduction of the public debt. Alternatively, a decision might also be taken to replace military expenditure by other kinds of government expenditure. These different policies would have different impacts upon the level of effective demand. In practice, different combinations of them would be likely to be used in different countries.

79. Disarmament would lead to an immediate reduction of effective demand only in so far as total expenditure of the government-owned sector were reduced. It might seem at first sight that this result would be avoided if tax revenue were reduced by the same amount as government expenditure, but this is not, in general, the case, since some of the increased disposable income would be saved rather than spent. The effect on consumption would depend on which type of tax were reduced, whether direct or indirect, and on which income group were affected. Generally, reduction in taxes diminishing the burdens on low income groups are the most effective. Even so, however, some fall in income would result under these assumptions. A setback of this kind, unless counteracted by other measures, might also discourage private investment and thus lead to a further fall in income.

80. It should, perhaps, be observed that in so far as it is desired to raise private consumption, the appropriate means cannot lie exclusively in reductions in direct taxation because those benefited by such a measure do not include the poorest sectors of the population whose incomes are too low to be taxed. Supplementary measures of various types would be required to ensure that all parts of the community benefited to some extent from the higher consumption levels made possible by disarmament.

81. The effect of using the money saved by a reduction of military expenditure for repaying public debt would be twofold. On the one

hand government expenditure on goods and services would be lower, since debt repayment does not in itself constitute a direct offset to the reduction in military spending. On the other hand, by substituting holdings of money for holdings of public debt some private spending on goods and services would probably be stimulated. The extent of this stimulation is difficult to assess, and would vary with the kind of debt redeemed, but it would be unlikely to offset the deflationary impact of the original reduction in government expenditure.

82. Monetary and fiscal policy could be used to offset the effect of a shortfall in total demand that might result from a decline in government expenditure. Monetary policy, whether operated mainly through interest rates or mainly through a more direct control of credit, gives some scope for the encouragement of both capital formation by business and purchases of durable goods by consumers. Changes in taxation, or transfers, in addition to their immediate effects on purchasing power, to which some reference has already been made, may also be expected to exert some influence on the formation of business capital; tax concessions may be designed to encourage private investment in general or to give special encouragement to investment in particular industries or localities where it will most effectively employ resources formerly in military use. Moreover, although in some countries there are severe limits to the extent to which it is practicable to use unbalanced budgets as a means of adjusting the level of effective demand, such measures, where they are acceptable, are powerful instruments for this purpose. Tax revenue might be deliberately reduced by more than the net reduction in government expenditure brought about by disarmament. In some countries, the changes that have already taken place in the net budget balance of the government sector within small numbers of years appear to have been of the same order of magnitude as those that might be required to offset a shortfall of demand consequent upon disarmament.

83. If a shortfall of effective demand cannot be fully dealt with by the foregoing methods, there always remains the possibility of an increase in civilian government expenditure designed at least in part to help in solving this problem. Expenditure on goods and services is, in general, likely to be more effective for this purpose than transfer expenditure—the increase of grants and subsidies to various sections of the community—but in the not unlikely event of the recipients being disposed to spend nearly all the cash benefits they receive, the difference would be small.

84. The instruments of adjustment referred to above are more highly developed, easier to bring into operation, and may be expected to work more effectively in some countries than in others. Bearing in mind, however, that a substantial part of military expenditure would probably be replaced by other government expenditure in most countries, it may be concluded from the foregoing paragraphs that the maintenance of effective demand in the face of disarmament should not prove difficult. Indeed, it should be practicable not merely to maintain the level of demand during the transition period, but to move forward to the more rapid growth in total real income that a transfer of resources from military use to productive investment would render physically possible.

85. It has been argued that in so far as disarmament might lead to a reduction in the relative size of the government sector, the stabilizing effect that the existence of a substantial public sector exercises upon the general level of activity might be diminished. Military expenditure, however, has itself been notoriously subject to variations which, being unconnected with the requirements of stabilization policy, have disturbed the level of activity in the economies in question and in the world as a whole. Disarmament need not therefore increase the difficulty of economic stabilization, even if it should lead to a fall in the relative size of the government sector.

86. For many *under-developed countries,* the effect of disarmament upon the industrial countries' demands for primary products, and thus on the export earnings of the primary producing countries, would be of great importance. So would the methods of dealing with the liquidation of strategic stockpiles. These problems are discussed in chapter 5. It is necessary to add here that the industrial countries' success in maintaining effective demand during the immediate period of disarmament would be of great concern to all primary producing countries. The significance of disarmament for an expansion of aid to under-developed countries is dealt with in chapter 6.

87. The effects of disarmament within the under-developed countries themselves would vary from one to another. In some cases, the ratio of the military budget to the gross domestic product is of the same order of magnitude as in the major military powers (4-10 per cent). In the majority of cases (including most of the larger under-developed countries), it is less than 4 per cent. So far as growth rates are concerned, however, the effects of the release for non-military purposes of these proportions of the national resources, whether high or low, might be greater than the figures would by themselves suggest. Both total capital formation and government expenditure are generally smaller in relation to gross domestic product in the under-developed countries than in the richer ones. The ratio of military expenditure to gross domestic capital formation in the majority of under-developed countries for which the data exist lies in the same range (10 per cent and upward) as in the majority of other countries. Thus the contribution of disarmament to their economic growth would be very substantial.

88. Under-developed countries usually obtain their supplies of munitions from abroad either as direct purchases or as grants under military agreements or both. To the extent that these imports are received without payment, their cessation would have little economic impact on under-developed countries. On the other hand, to the extent that these imports have required the expenditure of foreign exchange, disarmament would make it possible to reallocate foreign exchange to imports of capital goods and of other equipment needed for economic growth. There are, however, a few countries which have been receiving considerable foreign exchange from foreign military aid and military expenditure including the outlays of foreign personnel. In consequence, it is important that any disarmament programme should include measures to relieve the strain on the external balances of such countries.

89. Reductions in the military budgets of most under-developed countries would have their main effects through the reduction of man-

power in the armed forces and the associated decrease in local expenditure on the products used by the armed forces. The release of unskilled military personnel would to some extent aggravate the already difficult problems of unemployment and under-employment. On the other hand, the members of the armed forces in the under-developed countries are frequently better provided with potentially useful skills than the rest of the population. The more skilled men should be easier to absorb into productive employment and their absorption should contribute substantially to the development of the economy.

90. As was pointed out above with respect to the industrialized private enterprise economies, the maintenance of the level of effective demand may require sustaining the level of government expenditure. This consideration appears to apply with greater force to the under-developed countries, where tax reduction may be less effective in stimulating private expenditure than it is in the more developed economies. The need to plan alternative government expenditure would therefore be particularly great.

91. In the *centrally planned economies,* the maintenance of effective demand while reducing military expenditure would be simply a matter of efficiency of planning techniques. Since decisions concerning the production of military output as well as of investment and consumer goods are co-ordinated through the national economic plan, the substitution of one type of expenditure for another does not raise any basic problems for the maintenance of effective demand. The reply from the Government of the Czechoslovak Socialist Republic indicates that this can be accomplished by certain adjustments in the current economic plans without necessitating the establishment of any special economic institutions. The effect of the decline in armaments expenditure could be largely offset by corresponding increases in investment in plant and equipment and for other purposes such as housing as well as by increases in personal consumption. A rise in personal consumption could be brought about by a reduction in taxation corresponding in magnitude to that part of armament expenditure which was not replaced by investment.

92. In consequence, effective demand could be readily maintained, and the principal problems of conversion would concern the physical adaptation of plants producing armaments to the production of goods for civilian use. The problems of reallocation of resources are discussed in some detail in the reply from the Government of the Polish People's Republic.[4] It is indicated that the period of short-term transition may be divided into three major stages. In the first stage, the main concern would be to utilize the existing military fixed assets and skilled manpower for facilitating an increase in the output of civilian goods and services. The role of new investment and development of additional supplies of raw materials would be relatively minor. It is suggested that the warehouses, transport and communications equipment, repair shops and other capital equipment and raw materials used for military purposes would be converted as far as technically possible to the production of civilian goods. Military personnel with specialized

[4] See the reply of the Government of the Polish People's Republic.

higher education would be transferred to civilian functions in the departments of health, education and social services.

93. The second stage involves an expansion of plant and equipment, in which there is relatively limited or no excess capacity at present, for the absorption of the manpower released from military use. Particular attention would have to be paid to overcoming the shortages of raw materials that might develop. For this purpose, an increase in the domestic output of these commodities as well as in exports to pay for imports would be called for. With an adequate expansion of productive capacities and of the raw materials base, it would then be possible in the third stage to reap the full benefits of conversion—in the form of a higher rate of growth of the economy and of levels of living than is currently envisaged.

CHAPTER 4

STRUCTURAL PROBLEMS OF CONVERSION

94. Even with the successful maintenance of total effective demand during a period of disarmament, significant problems of adjustment would remain in specific sectors and areas of the economy. Part of the personnel released by the armed forces and the armaments industry would have to be trained or retrained so as to permit absorption into peacetime occupations. Some plant and equipment would have to be converted. Productive capacity might contract in some industries, and might have to be expanded in others. Where the manufacture of armaments has been concentrated in particular regions, it would be necessary either to shift resources out of those regions to other areas of growing demand, or alternatively to undertake schemes of redevelopment. The necessary steps would have to be taken to modify the direction of research and of technological development.

95. It has already been suggested that the broad problem of readaptation of industry and manpower resulting from disarmament is not basically dissimilar from that experienced in the normal process of economic growth. For example, a decline in demand for coal in western Europe and North America has created special problems in the coal mining communities. The position in some of the textile towns is similar. In the centrally planned economies, problems of this type can be handled by planning. In private enterprise economies, where adjustments may be delayed because of such circumstances as immobility of some labour or capital and rigidity of prices, they can be dealt with by special government measures.

96. The higher the rate of growth of the economy, the easier the process of adaptation. In the longer run, disarmament would allow each country to raise the rate of investment and to adapt productive capacity more adequately to the needs of the population and to the requirements of economic growth, both in the private enterprise and the centrally planned economies.

97. In the shorter run, the smoothness of the transition would largely depend on the ability of Governments to anticipate the types of problem that might arise, and on the adequacy of preparations. This calls for an adequate assessment of the direct and indirect demands of military expenditure on each industrial sector and region, and of the extent to which a replacement of military by other expenditure would involve a modification of the structure of demand. Such a confrontation of military demands and of civilian alternatives can be carried out in detail only by national Governments. The present discussion sets out only some of the more important considerations involved.

98. The resources now supplying military requirements could be adapted to peacetime needs partly by shifts within industries and plants, and partly by shifts between industries.

(a) *Shifts within industries and plants.* In a large number of cases, it may be possible for a given plant to shift the nature of the end-product from military equipment to durable consumer goods and investment goods while using the same productive equipment and manpower. For instance, there might be a shift from tanks to tractors, from military to civilian aircraft, from naval vessels to merchant ships, or from electronic equipment for military purposes to television sets. This might be a relatively easy procedure, in many cases involving little more than changes in designs, retooling, and minor adaptations of skills, particularly in plants and enterprises which already produce both military and civilian goods.

(b) *Shifts between industries.* Other cases, however, might call for a more complex form of conversion requiring the output of some industries to be completely stopped or sharply curtailed and that of others to be correspondingly expanded. Many ordnance factories might cease to produce altogether. In some countries, the total output of aircraft, ships and boats would have to be reduced since civilian demand for such products would not fully offset the fall in military demand. On the other hand, a considerable expansion of output in the cement, brick, glass and building industries might be required should there be a shift in expenditure in favour of civilian construction. Shifts of this type cannot be accommodated within the same plant but require instead a movement of resources from one industry to another.

99. Shifts between industries would necessitate acquisition of different types of skill by the working force as well as new investment in plant and equipment. They would take a somewhat longer time to accomplish than shifts within industries, the length of time depending on how major or far-removed were the shifts. If the two industries were to have a similar resource content—as do the aircraft industry and the general engineering industry, for instance—the adaptation would be easier and would take a shorter time than if the two industries were to differ significantly in resource content—as do the aircraft industry and the building materials industry, for example. The extent to which the conversion would involve shifts within industries and plants as opposed to shifts between industries can be judged from studies made in a number of countries.

The problem of inter-industry shifts

100. In the *United States,* owing to the concentration of military expenditure in a limited number of industries, only a few industries would be affected sharply by reductions in military demand. Professor Leontief has prepared a hypothetical study of the inter-industrial ramifications of conversion in the United States on the assumption that military expenditure is replaced wholly by increases in expenditure on other kinds of goods and services in proportion to their shares in total demand in 1958.[1] Such a reallocation of military expenditure would

[1] W. Leontief and M. Hoffenberg, "The Economic Effects of Disarmament", *Scientific American* (New York), vol. 204, No. 4, April 1961, pp. 47-55.

release 1,320,000 employees from the contracting industries for employment elsewhere. Over four-fifths of the decline in employment would be in four industries—aircraft and parts (which includes missiles), radio, ordnance, and ships and boats (see annex 3, table 3-1). Employment would be totally eliminated in the ordnance industry and would fall by more than 90 per cent in the aircraft and parts industry; expansion of demand for civilian aircraft would have only a minor influence on output in the latter industry.

101. In addition to the 1,320,000 employees released from contracting industries, the 2,530,000 members of the armed forces and about 790,000 civilian employees of military agencies would become available for alternative employment. Thus, about 4.5 million persons —some 6 or 7 per cent of the total labour force in employment in 1958 —would, on these assumptions, have to change their employment from one industry group to another or find civilian instead of military employment.

102. Professor Leontief estimates the number absorbed into expanding sectors to be some 600,000 less than that released from the military establishment and the contracting industries. This difference, taken literally, would imply that an increase of about 1 per cent in total government and private expenditure, spread over the duration of the disarmament process, would be required to preserve the general level of employment. It is, however, a residual figure which should be treated with reserve, since it is less than the margin of error of this hypothetical calculation.

103. A similar calculation, though with less narrowly defined industry groups, has been made for the *United Kingdom* by Professor J. R. N. Stone and his colleagues of the University of Cambridge, Department of Applied Economics. The assumption in this case is that military expenditure is replaced as to one-third by increased private consumption expenditure, one-third by fixed capital formation at home, and one-third by increased foreign aid. The only industrial group in which output (and hence employment) is estimated to decline is that including the manufacture of ships and aircraft, in which the fall is about 20 per cent (see annex 3, table 3-2). Including the members of the armed forces themselves, and civilian employees of the military establishment, the number of persons required to change their "industry group" would be about 900,000, or between 3½ and 4 per cent of the labour force.

104. In both cases, these calculations indicate the numbers who would have to move from one industry to another (or out of direct military employment) in the event of very rapid disarmament. If the operation were to extend over a number of years, the change per annum would be only a fraction of the total. Moreover, a substantial proportion of the shrinkage in the armed forces and in the contracting industries might take place through the normal process of turnover, thereby diminishing the number of persons actually required to move from one kind of employment to another.

105. The replies received from a number of *other countries of western Europe* indicate that the problem of shifts from one industry

to another would be a relatively small one.[2] According to these replies, the rate of economic growth is now limited by labour shortages and it could be accelerated if manpower were released from military uses.

106. *Under-developed countries* generally have been meeting their requirements for military goods and services by imports, so that their disarmament would release foreign exchange rather than industrial workers. As indicated in chapter 3, it would also free members of the forces with many useful skills and training. Some of these would be absorbed by the growing labour market; others could be usefully employed in the development of social capital by construction of minor irrigation works, feeder-roads and other community development projects, which would help to mitigate the already acute problem of underdevelopment.

107. In some of the *semi-industrialized countries,* however, the newly started basic industries which manufacture, for example, chemical fertilizers, heavy machine tools, heavy vehicles, aircraft and electronic equipment, have been serving both military and civilian needs. In the event of disarmament these industries could concentrate, without any transitional difficulty, on the manufacture of capital goods so urgently needed for both consumer goods industries and capital goods industries. Transport capacity, particularly vehicles, released from military uses, would supplement the inadequate transport facilities available in the present stage of their development.

108. In the *centrally planned economies,* as indicated previously, productive capacity is usually fully utilized. Thus it would be necessary to convert plants producing military equipment to production of durable consumer goods and of such investment goods as can be produced in them with only minor retooling. Such conversion could be achieved rapidly. Many plants producing military equipment produce also certain goods for civilian purposes. In Poland, for instance, plants which manufacture military equipment also account for about 50 per cent of the national output of motor cycles and scooters, 80 per cent of the sewing machines, 70 per cent of the washing machines and 30 per cent of the refrigerators produced in the country.[3] The reply of the Government of the Czechoslovak Socialist Republic mentions experience with conversion of a number of plants from military production to production of medium-sized trucks, tractors and television sets, in all of which no more than 3 to 4 per cent of the productive equipment was found to be unutilizable after conversion.[4]

109. In the longer run, disarmament would make possible substantial increases of investment, so that the more adequate adaptation of productive capacity to the needs of the population and to the requirements of economic growth could proceed fairly rapidly. In Poland, for instance, it is estimated that total disarmament would allow the total amount of capital investment to rise by over 9 per cent as compared with the level of 1962.[5] In Bulgaria an increase of investment by 10

[2] See volume II of this report (E/3593/Rev.1/Add.1).
[3] See the reply of the Government of the Polish People's Republic.
[4] See the reply of the Government of the Czechoslovak Socialist Republic.
[5] See the reply of the Government of the Polish People's Republic, Addendum.

to 12 per cent would be possible in consequence of disarmament.[6] A considerable increase in investment would also take place in Hungary.[7]

110. The replies of the Governments of the centrally planned economies state that there will be no difficulty in absorbing released manpower. In countries such as Czechoslovakia, the German Democratic Republic and Hungary, the supply of labour in recent years has not kept pace with growing labour requirements. In Poland it is estimated that in the next few years the increase of the industrial labour force will be drawn mainly from the natural increase of the urban population with relatively little influx of workers from agriculture to industry. In these circumstances it would appear that demobilization of manpower might slow down the transfer of labour from agriculture to industry. But the increase of investment following disarmament would raise considerably the requirement of labour for industry and construction. The final effect, therefore, would be to stimulate rather than to slow down the transfer of labour from agriculture to industry. In the Soviet Union the absorption of demobilized personnel would be greatly facilitated by the growing demand for manpower in the rapidly expanding eastern territories. The construction of new industrial centres and the expansion of cultivation of land in the less populated Asian parts of the Soviet Union, particularly in Siberia, has generated a demand for labour which cannot be fully met by local resources. Migration to these territories is being encouraged and disarmament would provide a welcome source for addition to the manpower required.

Special problems

111. The preceding analysis of the changes resulting from the process of reallocation of military expenditure to other purposes suggests that the net shifts in employment and output would be relatively small. As already indicated, however, special problems would arise from a concentration of the military effort in certain industries or areas. These problems may be broadly classified as follows:

(i) Adaptation of skills to peace-time requirements.

(ii) Problems of assistance to particular enterprises, industries and localities, heavily oriented to military use.

(iii) Reorientation of research and technological development.

(i) *Adaptation of skills*

112. In some instances, the skills that are essential for service in the armed forces or in some of the major industries producing military goods may not be readily adaptable to the requirements of civilian employment. Consequently, there would arise a necessity to retrain part of the skilled manpower and to train some of the unskilled.

113. (a) *Armed personnel and employees in the Ministry of Defence.* Most of the officers in modern armed forces have received

[6] See the reply of the People's Republic of Bulgaria.

[7] According to the reply of the Government of the Hungarian People's Republic, military expenditure in 1959 was 2.5 thousand million forints while total investment was 19.5 thousand million forints. If only half of the military expenditure were turned to investment, the latter would increase by about 6.5 per cent.

training that would fit them easily for technical, engineering, medical and similar posts in civilian life. As the reply of the Government of the United States of America indicates, 85 per cent of the commissioned officers in that country have completed some form of college training. However, some of the senior officers in the armed forces have been trained for purposes significantly different from those that are needed in civilian life. A special effort would have to be made to find suitable employment for them. Some of them might be called on to serve in various capacities in the international organs to be set up for control of disarmament. Some would find useful occupations in civilian activities where their organizational abilities may be a special requirement. Since the number of officers is usually not very large, it should not be hard to absorb them into civilian life.

114. The demobilization of the non-professional members of the armed forces would involve a much larger number of persons. But most of these men have been drawn from civilian life where they were previously engaged in non-military occupations. They are usually young and relatively mobile. Military service has often interrupted their education. In many cases, however, they have acquired new technical skills while in military service. In most of the under-developed countries, the regular armed forces possess a much higher level of industrial and technical skills than the civilian population; this would tend to give them a relatively greater chance of being absorbed into civilian employment, particularly in an expanding economy.

115. The release of the armed forces, over some years, would imply only that the number of new entrants for that period would be augmented by this special factor. In some countries, particularly in Europe, which are faced with shortages of manpower, the availability of a larger labour force could indeed contribute to an acceleration of the rate of economic growth. Moreover, the financial resources released by disarmament should make it possible to arrange for termination pay and special allowances for various types of training. For instance, the Government of the United States carried out, after the Second World War, a large programme for education, training and job placement for demobilized army personnel. Nearly 8 million veterans took advantage of the training programme. Similarly, 2 million, or one-third of the eligible veterans of the Korean war have benefited from such training facilities.[8]

116. The reply of the Government of the Polish People's Republic indicates the magnitudes involved in re-employing the non-professional members of the armed forces. It is anticipated that a majority of the draftees from rural areas would return to the countryside to help in the projected intensification of agriculture. Some 20 to 30 per cent are expected to be employed in plants which now produce military equipment but could immediately be converted to produce investment goods, export commodities and raw materials. This would further facilitate the productive employment of the remainder.

117. (b) *Industries producing military goods.* As pointed out above, the problem of conversion in the industrial countries[9] is likely

[8] See the reply of the Government of the United States of America.

[9] Owing to virtual absence of major military goods industries in the under-developed countries, this question has relatively limited relevance for them.

to be a short-term one for most industries. In industries depending heavily on military orders, many of the employees possess a level of skill that should find gainful employment in other branches of production,[10] so long as over-all effective demand is rising. Moreover, where some form of retraining or additional training would be needed for employment, it could be acquired through the facilities for apprenticeship and on-the-job training often provided by individual firms or plants for their new labour force. Even so, there might be some special cases which would require special assistance to encourage the adaptation of skills to new jobs. Such help could be provided through opportunities for vocational training financed by such means as termination pay or other special measures.

118. In this age of automation the demand for highly skilled labour is rising faster than the demand for semi-skilled and unskilled. Therefore a significant number of those who would be released in the latter categories might be faced with difficult problems, particularly if they were of an advanced age. While the experience of a much more extensive demobilization and conversion at the end of the Second World War suggests that the problems thus arising are by no means insuperable, governments should stand ready to assist the reabsorption of such workers into productive employment.

(ii) *Particular enterprises and localities*

119. Owing to the concentration of military output in a few industries, termination of military contracts would bear specially upon the activities of particular enterprises. These would have a choice of three courses of action: complete shut-down, the adaptation of existing plant and equipment to the production of other goods through major retooling, and investment in entirely new plants. Similar problems on a much larger scale were faced at the end of the last war and tackled with a considerable degree of success.

120. The geographical distribution of the activity based on military expenditure is very uneven in many countries. The readjustments necessitated by disarmament would therefore impinge particularly heavily on certain areas and localities. Various forms of public and other assistance would thus prove necessary to facilitate readjustment. Measures of three types would be required. First, attempts should be made to diversify the structure of employment by developing new industries where possible. Secondly, adequate relocation allowances should be provided to facilitate the movement of those who are mobile to areas where the labour market is expanding. Thirdly, adequate relief should be granted to those whose attachment to the locality is too deep or whose age is too advanced to contemplate moving to other areas. The costs of the necessary measures would be very small in relation to the resources that disarmament would release.

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[10] Of the 2.5 million persons employed directly or indirectly in producing military goods and services in the private sector in the United States in 1960, nearly 1.5 million, or 60 per cent of the total, possessed various types of skills such as professional, technical, managerial, clerical or skilled craftsmanship. See the reply of the Government of the United States of America.

(iii) *Reorientation of research and technological development*

121. In the centrally planned economies Governments have always played a major role in promoting research and development. In the private enterprise economies also, this role has expanded everywhere in recent years, particularly through the growth of research for military purposes. In the United Kingdom, direct military expenditure is responsible for nearly two-fifths of the total spent on research and development. Approximately half of the research and development effort in the United States is financed out of the military budget; this part of research is highly concentrated in a few industries.

122. The magnitude of the task of shifting scientific and technical personnel to non-military fields of research would differ from country to country, but the estimates that have been made for the United States may have some relevance elsewhere. In that country, expenditure on research and development is six to seven times higher per dollar of military demand than per dollar of final civilian demand.[11] Therefore, on the hypothetical assumption of an unchanged proportional allocation of funds to science by the civilian sector, the reply of the Government of the United States of America estimates that a reallocation of total military expenditure to civilian purposes would lead to a reduction of about 40 per cent in spending for research and development. The corresponding decline in the employment of scientific personnel would amount to only half the decline in research and development spending, or about 20 per cent.[12]

123. No reduction in the actual employment of scientific and technical personnel need be feared, however, because the demand for civilian research would increase rapidly. Indeed, one of the main reasons why scientific research is still far from adequately applied in many civilian fields is the fact that highly qualified personnel have been scarce, and have been pre-empted by military demands. A more adequate supply of specialists would make it possible to open up new fields of inquiry, hitherto virtually neglected, as well as to devote larger resources to existing lines of scientific investigation in both the developed and under-developed countries. The scope for peaceful research in the physical, chemical, biological and human sciences is unlimited, and the potential benefits to the whole of humanity incalculable.

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[11] See the reply of the Government of the United States of America.

[12] The smaller decline in employment is due in part to the fact that the materials and equipment content of research expenditures is much higher for military than for civilian research and in part to the fact that more scientists and engineers are required in posts not directly connected with research and development in the non-military industries than in the military.

CHAPTER 5

THE IMPACT OF DISARMAMENT ON INTERNATIONAL ECONOMIC RELATIONS

124. Disarmament would be bound to have favourable effects on the development of international economic relations. The political *détente* that would accompany an international disarmament programme would in itself imply that nations were willing to reconsider their economic relations with one another. The consequent relaxation of international tensions would provide a sound basis for reduction of trade barriers and for modification of existing trade agreements and trading practices. In the long run this would encourage an expansion of international trade, a more rational international division of labour and a more effective use of the world's resources. In the short term it might help conversion by generating new demand for exports from existing sources of supply that could be satisfied fairly easily from existing capacities.

125. The relaxation of international tension would benefit trade through the elimination of the concern with national defence as a factor affecting national trade policies. The needs of national defence have long been accepted as a legitimate reason for the pursuit of discriminatory and protectionist policies.[1] Among the justifications advanced for the protection of agriculture and mining in many industrial countries has been the need to guarantee an adequate national supply of food and raw materials. In many instances, the domestic production of manufactured goods, as well, has been promoted on security grounds, to the detriment of international trade. Security is not the only consideration in such cases, and may not even be the decisive one; nevertheless, it carries considerable weight with Governments at the present time. After disarmament, however, its force would be lost, and an opportunity would be afforded to re-examine and improve the framework of world trade.

126. An important aspect of this matter is trade between the centrally planned economies and the rest of the world. Although this trade has been rising in relation to world trade in recent years, its share is still low in comparison with the levels prevailing before the Second World War and, especially, in comparison with the share of these economies in world output and with the levels that could be achieved under favourable conditions in the future. The centrally planned economies are expanding rapidly and form a growing market, particularly for durable producers' goods and raw materials. At the

[1] It is true that at certain times national security considerations have led to higher trade flows in particular directions than might otherwise have taken place; strategic stockpiling, for example, has stimulated purchases of some commodities. However, this stimulus has not been an unmixed blessing, and in any case stockpiling is no longer significant in world trade.

same time, they are capable of serving as a source of supply to the rest of the world for certain primary products and manufactures. The obstacles that stand in the way of closer economic relations between state trading and private enterprise economies are not basically of a technical character. To a considerable extent they reflect mutual lack of confidence. A lessening of international tensions and a rebuilding of confidence would help to remove them.

127. Disarmament would bring about a change in the composition and rate of growth of output and thus affect the structure and rate of expansion of world trade. While the composition of the non-military production that would replace military output cannot be precisely foreseen, it appears to be a safe assumption that all the main categories of civilian output would increase their share in national product. In so far as increased investment and greater economic aid would accelerate the rate of economic growth in developed and under-developed countries, a more rapid expansion of world trade could be anticipated. However, there are more immediate effects that might follow the shift in demand; these hinge on the difference between the import content of military expenditure and the import content of the increments to consumption, investment and foreign aid that disarmament would facilitate.

128. It is possible in principle to estimate the import content of any country's military expenditure, as well as of the civilian expenditure that would replace it, by means of an analysis of an economy's inter-industry structure. Such an analysis would indicate whether a shift from military expenditure to, say, housing construction would result in a net increase or a net decrease in the demand for imports both in the aggregate and for specific commodities.

129. Some exports of primary products, such as petroleum, rubber and most metallic ores depend significantly at present on direct and indirect demand generated by military purchases. An estimate of this dependence with respect to the United States economy is summarized in annex 3, table 3-3. These figures show, for instance, that the direct and indirect demand for copper generated by United States military expenditure in 1958 amounted to 7.8 per cent of that year's total world supply and to 7.4 per cent of the supply in 1959. On the assumption that the demand generated by the combined military outlays of all industrialized countries may be about twice as large as that computed for the United States alone, the table indicates that some 15-16 per cent of world copper output has served, directly and indirectly, military purposes (see columns 3 and 4). For tin, nickel, lead and zinc the corresponding figure is over 9 per cent; for petroleum, between 8 and 9 per cent. In view of the well-known sensitivity of the prices of these products to changes in demand, the elimination of all armament expenditure, if there were no offsetting rise in civilian demand, could have a seriously adverse effect on the income of those under-developed countries whose exports consist largely of such raw materials.

130. Table 3-4 (in annex 3) shows, however, that the demand of the United States and of the world for these raw materials would be reduced only fractionally—by less than 2 per cent—if the elimination of military expenditure were accompanied by a corresponding increase in private and public non-military expenditure. These hypothetical

estimates, it should be noted, are based on the assumption that private consumption, investment, non-military government purchases and other categories of non-military demand would all increase in the same proportion. However, since the content of these raw materials in military production does not differ significantly from that of the most important categories of non-military production, the impact on over-all demand for the items listed in the table would appear to be only marginal for any likely change in the composition of civilian demand.

131. Since the importance of military expenditure for most other primary commodities is smaller than for those discussed above, its cessation, even if not offset by an equal increase in non-military expenditure, would produce a smaller percentage of reduction in demand for them. The reallocation of military expenditure to non-military purposes would probably bring about a net increase in this demand. The hypothetical calculations made for the United States and the United Kingdom, for instance, suggest that this reallocation would increase the demand for both food and clothing and thus for foodstuffs and textile materials in general.

132. Since disarmament may be expected to result in an acceleration of economic growth, it should stimulate the growth of demand for primary production in general. Coupled with the fact that disarmament should be associated with a tendency for the advanced countries to open their markets more widely to foodstuffs, for instance, this would make for a substantial growth of primary commodity trade. Accelerated economic growth would be still more powerful in increasing total demand for manufactures. In the past, an increased world demand for manufactures has normally been associated with increased international trade in them. The tendency to reduce trade barriers should be particularly important in enabling developing countries to increase their exports of manufactures to the more highly developed.

133. The over-all impact of disarmament on the trade of under-developed countries is likely to be favourable, not only because of the acceleration of economic growth but also because of the greatly expanded aid to be expected from the more advanced countries. Both private enterprise and centrally planned economies should also be prepared to open their markets more widely to under-developed countries once the trade restrictions imposed for security reasons are lifted. There might, however, be instances in which declines in demand for particular commodities would cause appreciable difficulties. In these cases consideration should be given to special aid for the countries concerned, in the same way as for particular industries or areas within the principal disarming countries.

134. The immediate impact of disarmament on international economic relations during the conversion period is a matter that needs to be given careful study along with the other conversion problems already discussed in chapters 3 and 4. Changes in the level of aggregate economic activity associated with disarmament in the major industrial countries would be a major determinant of the level of international trade during the conversion period. In the international field, as in the domestic, nations need to be prepared to take whatever measures may prove appropriate to facilitate the reallocation of resources and to

ensure that any temporary dislocations of economic life that might occur are minimized. The degree to which special policies might be called for would depend partly on the speed of the disarmament process.

135. If appropriate steps are taken it should be possible even in the short run to avoid any significant reductions in the general level of primary product prices, but it needs nevertheless to be realized that any failure to achieve this goal could have serious consequences. For many of the countries mainly dependent on the export of primary commodities, a percentage decline in their export earnings which might appear small arithmetically could cause grave damage. For example, a 6 per cent drop in their average export prices, were it to take place, would imply for the under-developed countries a decline in their foreign exchange earnings equivalent to something like one-half of all official economic grants and loans currently received from abroad in a year.[2] Recessions in activity in the industrial countries have caused declines of this order of magnitude in the recent past. Concerted international action would, therefore, be required to prevent any such decline in the prices and incomes of primary producing countries as a result of disarmament.

136. Even with favourable prospects for total trade, however, special problems might arise during the conversion period for particular countries or for trade in particular commodities. One such problem stems from the fact that a few countries have been receiving considerable foreign exchange from military aid and military expenditure, including the outlays of foreign personnel. In these cases, special attention should be given to the possibility of arranging future programmes of developmental assistance, and especially their timing, so as to avoid adverse effects on their balances of payments.

137. A more wide-spread problem relates to particular countries that are largely dependent on the export of those commodities for which world demand might suffer a temporary decline. In conjunction with the formulation of any disarmament programme, therefore, it is highly desirable that a detailed study be undertaken on the changes in demand for the various primary commodities which would result from disarmament. The reduction of strategic stockpiles of primary commodities should be planned in such a way as to cause a minimum of disturbance to international markets, and consideration should be given to the adequacy of already existing compensatory measures and the possibility that additional measures might be required during the conversion period. Regardless of the technique employed, no country should be allowed to suffer a disruption to its economic life, even temporarily, as a result of disarmament.

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[2] In 1956-1959 the sum of net official donations and official net long-term lending to under-developed countries averaged $3.2 billion annually, or about 12.6 per cent of the $25.2 billion annual average value of these countries' exports during the same period. (See, respectively, United Nations, *International Flow of Long-term Capital and Official Donations, 1951-1959* (Sales No.: 62.II.D.1), table 3 and United Nations, *Monthly Bulletin of Statistics*, February 1962, table 43. The two sets of statistics differ somewhat in country coverage.)

CHAPTER 6

THE EFFECTS OF DISARMAMENT ON THE VOLUME AND FRAMEWORK OF AID FOR ECONOMIC DEVELOPMENT

138. The promotion of economic and social development in under-developed countries is one of the most important ways in which the resources released by disarmament could be put to use. Two-thirds of the world's population lives in countries that obtain only a modest part of the benefits which modern technology and science are capable of providing. The peoples of the under-developed areas are determined to raise their levels of living, and the peoples of the more industrialized countries have undertaken to help them do so. Progress has been made since the Second World War in raising real incomes per capita in many under-developed countries. The planning of economic and social development has been intensified in some and initiated in others, and the mobilization of domestic resources for national development has become a major policy objective. In many instances, domestic resources have been supplemented by foreign loans, grants, private capital flows and technical assistance.

139. National efforts and international co-operation in the development of the under-developed countries have so far not brought about the desired acceleration of economic growth. The average rate of growth in per capita income over the past decade was still less than 2 per cent per annum, and possibly as little as 1 per cent.[1] The absolute gap between per capita incomes of rich and poor countries has been progressively widening.[2] Even if future growth in the developed areas is left out of account and the present levels of income in the developed areas are taken as a target, the recent experience of under-developed areas still appears disappointing. In under-developed areas the average level of real income per capita is now less than one-sixth—and in many of them less than one-tenth—of that enjoyed in such countries as Belgium, Denmark, Norway and the United Kingdom. Consequently, a future growth rate no higher than 2 per cent per annum could be expected to raise the level of living in poor countries to that now prevailing in the countries just mentioned only after a very long time.

140. An acceleration of the rate of growth of under-developed countries depends upon many factors, including the adoption of appropriate national development programmes and, in many cases, social and institutional reforms. Among these programmes an important role

[1] Owing to the margin of error in the population estimates of many under-developed countries (especially the inter-censal estimates), estimates of real income in these areas, which are rather crude in any case, are subject to an even wider margin of error when expressed in per capita terms.

[2] To narrow the gap, under-developed areas must experience a substantially higher growth rate than the more advanced areas, since in the higher-income areas a given rate of growth implies much larger absolute increments to income.

must be assigned to encouragement of productive investment both from domestic and foreign resources. To this end world disarmament could make a major contribution. Despite the inadequacies of the available statistics, it appears that the world's military expenditures far exceed the combined gross investment expenditures of the less developed areas; they are probably at least five times as large and may be much greater. A much larger volume of resources could thus be allocated to investment for productive development in these countries even if only a fraction of the resources currently devoted to military purposes were used in this way.

141. Assuming that the necessary national development programmes and social and institutional reforms were effectively realized, under-developed countries would be able to absorb a considerably larger flow of productive investment. The consequent effect upon the rate of growth may be illustrated by a hypothetical example in which it is assumed that these countries devoted half of the resources liberated by disarmament to investment in productive capacity and that at the same time the rate of total capital flow from more advanced countries (both private enterprise and centrally planned) rose to around $15 billion annually, or somewhat more than 1 per cent of their aggregate national product. This is a modest increase in view of the 8 or 9 per cent they now devote to military purposes. Under these conditions, the less advanced countries might be expected to increase their annual rate of growth of national product from, say, 3 per cent to 5 per cent. Assuming an annual rate of population growth of around 2 per cent, this could mean a trebling of the rate of increase in per capita income from 1 per cent to 3 per cent.

142. The hypothetical example just given is based on certain assumptions concerning income and investment and their interrelationship in under-developed areas. Although different sets of assumptions would inevitably lead to somewhat different estimates of acceleration in the rate of growth in under-developed areas, there clearly emerges the general conclusion that disarmament could bring about a marked increase in the rate of growth of real income in the poorer parts of the world.

143. These conclusions are reinforced by a comparison of the volume of resources now being devoted to military use with the various estimates made in recent years of the external financial needs of the under-developed countries. Four relatively comprehensive estimates of global aid requirements are available,[3] apart from a number of estimates

[3] These estimates of financial needs are based on fragmentary data. They have been compared in a United Nations document prepared for the Committee on a United Nations Capital Development Fund: *The Capital Development Needs of the Less Developed Countries* (A/AC.102/5). The earliest estimate is contained in a report prepared for the United Nations: *Measures for the Economic Development of Under-Developed Countries* (Sales No.: 51.II.B.2). Its estimates concerned the nineteen-fifties, and were based on data for 1949 and earlier years. The second estimate is contained in Max F. Millikan and W. W. Rostow, *A Proposal, Key to an Effective Foreign Policy* (New York, 1956). It is based on data for 1953 and earlier years. The third estimate, contained in Paul G. Hoffman, *One Hundred Countries, One and One Quarter Billion People* (Washington, 1960), is based on information available in 1959, and concerns the decade of the nineteen-sixties. The fourth is contained in P. N. Rosenstein-Rodan, "International Aid for Under-developed Countries", *Review of Economics and Statistics* (Cambridge, Mass.) XLIII (May, 1961) and covers the years 1962-1976.

of aid needed for specific purposes. In these calculations, the total amount of foreign capital required by the under-developed areas, over and above their domestic resources devoted to investment, is estimated to range from $6 billion to $10 billion annually. These figures are based on conservative assumptions: the target rates of growth of per capita real income are about 2 per cent, and the computations are based on assumed ratios between increments to real income and, on the one hand, increments to employment, or, on the other hand, increments to the stock of capital, which past experience suggests are reasonable but which could conceivably turn out to have underestimated the capital needs should conditions prove to be less favourable than anticipated. After allowing for the present flow of foreign capital through existing institutions and arrangements, the authors cited believe that there is a deficiency of about $3 billion a year that needs to be made good in order to achieve the modest annual rate of growth in income of 2 per cent per capita.[4]

144. Two further questions arise. First, would disarmament release in sufficient quantity the particular resources required for economic development? Secondly, is the present institutional framework of aid to under-developed countries likely to be affected by disarmament?

145. In the longer run, productive capacities can be adapted to any changed patterns of demand, and provided that the needs of under-developed countries are known in sufficient detail, no serious problems should arise in matching resources to uses. Even in the short run, however, it seems probable that a significantly large proportion of the resources absorbed for military use would indeed prove to be of a type useful for investment in under-developed countries. An important proportion of military expenditure absorbs the output of heavy industry and of the engineering and construction industries. The output of these industrial sectors could undoubtedly make a valuable contribution to the industrialization of the less developed areas and to their accumulation of social capital. Transportation and communication equipment, for example, is an important component of military expenditure and is urgently required by under-developed countries. When a disarmament programme is adopted it would be desirable for Governments to estimate what resources would become available for peaceful purposes in the various stages of the programme. In the light of these data and detailed information concerning the resources which under-developed countries could usefully employ in their developmental programmes, it would be possible for Governments to assess the share of the released resources to be allocated to the investment needs of the less industrialized parts of the world.

146. Disarmament would also release personnel, such as scientific research workers and engineers, who could be utilized for other purposes. In the event of disarmament, it should prove possible for the industrialized countries to provide greater technical assistance and thereby help remove one of the serious limitations to development efforts in these countries. Furthermore, disarmament would free from military service in both the more advanced and the less developed countries large groups

[4] *Ibid.*

of young people. Past experience in utilizing their good will and enthusiasm in a number of countries indicates that when completely freed from military preoccupations, many of them could make an important contribution to economic and social development in under-developed areas.

147. With respect to the impact of disarmament on the framework and structure of aid to under-developed countries several points need to be made. If we leave out of account—as seems proper in the present context—short-term finance of all kinds, private grants, and military and defence-support aid, the principal international flows of capital to under-developed countries consist of (1) official grants, (2) official loans and credits on non-commercial terms, (3) long-term loans and credits on commercial terms made by national governments and by international authorities, and (4) private long-term loans or direct investment. Unlike capital flows of the last three types, official grants do not, of course, burden the recipient country's balance of payments. Official loans and credits on non-commercial terms are less burdensome than public or private lending on commercial terms: hence the distinction between the second and third categories.

148. Comprehensive statistics of loans and grants to under-developed countries are not available according to the fourfold classification just mentioned. However, an impression of the over-all magnitude and composition of loans and grants to under-developed countries can be obtained from various sources.[5] During the past few years the total net flow of capital, as just defined, from private enterprise developed countries to under-developed countries averaged between $3.5 billion and $4 billion annually. About half represented official grants. The remainder consisted mostly of private lending.

149. In the fifteen years from 1945 to 1960 the sum total of credits granted by the centrally planned countries to under-developed countries and of mutual assistance among the centrally planned countries themselves amounted to about 52 billion old roubles. In the earlier years the greater part of the credits was granted to other centrally planned economies; in more recent years the emphasis has shifted to credits to under-developed countries.

150. The increased international flow of capital to under-developed countries that is certain to result from disarmament could take any one or more of the forms referred to above. Their relative importance would be likely to change, however, since each of them would be affected somewhat differently by the implementation of a disarmament programme.

151. As regards the flow of private capital, it may be assumed that this would continue to respond to commercial considerations. Diminished world tension resulting from disarmament, coupled with additional means of encouraging private foreign investment in under-developed countries, might be expected to lead to a greater movement of private capital into the[illegible]ountries.

[5] See *International Flow of Long-term Capital and Official Donations, 1951-1959* (Sales No.: 62.II.D.1) chap. 1, and *World Economic Survey, 1960* (Sales No.: 61.II.C.1), pp. 119-121.

152. At the present time, nine-tenths or more of official grants and loans are given under bilateral programmes. Bilateral and multilateral programmes of aid each have their own particular advantages and disadvantages, and many of the considerations which now prompt Governments to favour bilateral rather than multilateral aid might continue to hold good even in a disarmed world. On the other hand, in so far as political circumstances have had any weight in determining the direction and form of aid, effective disarmament and the related lessening of international tensions should improve the prospects for more co-operative international action.

153. The discussions that have been held in the Economic and Social Council and the General Assembly during the past eight years concerning the need for an increased flow of aid through an international fund within the framework of the United Nations have frequently emphasized the importance of the savings to be derived from general disarmament. The basic position of the General Assembly on this matter remains resolution 724 (VIII), adopted unanimously in 1953. Under this resolution the General Assembly made the following declaration:

> "We, the Governments of the States Members of the United Nations, in order to promote higher standards of living and conditions of economic and social progress and development, stand ready to ask our peoples, when sufficient progress has been made in internationally supervised world-wide disarmament, to devote a portion of the savings achieved through such disarmament to an international fund, within the framework of the United Nations, to assist development and reconstruction in under-developed countries."

154. It should be realized that the repayment of loans granted on commercial terms may impose heavy burdens on the balances of payments of these countries. Concern has already been expressed in recent years regarding the heavy accumulated indebtedness of a number of countries and the growing difficulties they have been experiencing in servicing outstanding loans. It seems urgent that as large a proportion of economic aid as possible should take the form of grants or "soft" loans. Disarmament would likely facilitate the increased flow of such aid. This is so because the savings afforded by disarmament would provide the aid-giving countries with a favourable opportunity to increase their assistance without imposing an additional burden on civilian expenditure. This should also lead to a desirable broadening of the existing basis of aid to include types of projects not adequately covered under existing policies, and should therefore facilitate a balanced execution of development plans. Increased aid in the fields of social investment should also become possible, as it is now generally recognized that substantial investment in health facilities and particularly in education is a prerequisite for obtaining the maximum benefits from other development efforts.

155. Because the competing claims in developed countries are also urgent, there is a serious possibility that the financial resources released by disarmament might be rapidly absorbed by purely national aims. It is therefore desirable that an appropriate proportion of these resources should be allocated to international aid in its various forms simultaneously with their use for domestic purposes.

156. It must be emphasized that foreign aid can play only a supplementary role in the development of these countries and that the responsibility for initiation and intensification of development efforts would continue to lie entirely with the governments and peoples concerned. There are many countries in which foreign exchange resources are by no means the only nor even the main limitation on the rate of economic growth. Such countries are not likely to be in a position to utilize larger amounts of aid effectively unless they take the domestic measures necessary to encourage such growth. There is reason to look to the major powers to be generous in allocating resources freed by disarmament to the development of under-developed countries. But there is also every reason to look to the under-developed countries themselves to create the conditions favourable to their economic growth. In this as in other fields discussed in this report, advance planning and preparation are likely to enhance greatly the favourable impact of general disarmament.

CHAPTER 7

SOME SOCIAL CONSEQUENCES OF DISARMAMENT

157. The economic and social consequences of disarmament are inextricably intertwined. As already discussed, it would be possible to bring about a significant improvement in many aspects of social life, provided that some of the resources released by disarmament were earmarked for fields such as education and scientific research, health, housing and urban development. An idea of the magnitude of the needs in these fields has been given in chapter 2. There are, however, some aspects of social life which elude measurement, but which none the less greatly affect individual and family life and on which smoother human relations within and between nations largely depend.

158. In a disarmed world, a general improvement could be expected in the *level of living* and in the conditions of under-privileged and low-income groups such as the old and retired people whose share in the social well-being is often meagre, even in the more developed countries. With the end of the armaments race, Governments would accord these social objectives a higher priority than in the past. The implementation of measures discussed in chapter 2 would lead to a cumulative diffusion of social benefits.

159. The more rapid rate of economic growth and the increase in productivity that may be expected to result from disarmament might well permit a reduction in working hours, an improvement in the conditions of work and a lengthening of paid vacations. To take full advantage of the resultant longer leisure and the higher level of living, wider cultural facilities would be required. In this context, education acquires special significance as a means for disseminating culture.

160. In the domain of *personal and family life,* disarmament and recession of the threat of war would decrease tensions which often bring about psychosomatic illnesses. Human life would acquire a new meaning, once war and preparations for war were eliminated. The whole prospect of life would be brightened, especially for young people about to enter a profession or found a family. There would no longer be any separation from the family for compulsory military service, so that the psychological, moral and material evils which this creates would be avoided. A greater stability in the family nucleus would be likely to exert a favourable influence on morality.

161. The very fact of disarmament would lead to a diminution of tensions between nations and races. The tendency to divert individual and national frustrations into national and racial hatreds would be lessened significantly.

162. In a disarmed world, the danger that security considerations and armed forces might play an excessive role in forming the values

of the community would be eliminated. It is important to note, however, that attention would need to be paid to constructive outlets for individual and collective aspirations.

163. If confidence is one of the necessary conditions for concluding a disarmament agreement, an increase of confidence would also be one of its happiest consequences. A decrease in tensions and in the influence of groups interested in armaments would bring about a profound change in the form and content of *international relations*. Political and economic conflict between nations, with its attendant risk of war, would more rapidly be replaced by constructive emulation. Scientific co-operation between nations would advance more rapidly, and the peaceful utilization of science and technology would be accelerated. The arts, too, would greatly benefit from an extension of international exchanges. All the great civilizations in the past have gained from such cultural contacts and have exerted their influence beyond their own frontiers. Disarmament would remove the main barriers to the far greater exchanges that are now technically possible. Humanity would thus be able to carry out co-operatively the projects which lie beyond the resources of a single country or a group of countries.

164. In short, disarmament would release resources from uses in which they are not only wasted but also in many ways make the remainder of mankind's wealth less effective in promoting welfare than it would otherwise be. In reckoning the gains from it, one must take into account a general easing of tension and frustration and an enhanced possibility of co-operation that would reinforce the direct economic contribution of the resources released.

165. In view of this, as well as the conclusions reached in previous chapters, there should be no doubt that the diversion to peaceful purposes of the resources now devoted to military expenditure could and should be of benefit to all countries and would lead to improvement of world social conditions.

CHAPTER 8

SUMMARY AND CONCLUSIONS

166. The present level of military expenditure not only represents a grave political danger but also imposes a heavy economic and social burden on most countries. It absorbs a large volume of human and material resources of all kinds, which could be used to increase economic and social welfare throughout the world—both in the highly industrialized countries, which at the present time incur the bulk of the world's military expenditures, and in the less developed areas.

Resources devoted to military purposes

167. There appears to be general agreement that the world is spending roughly $120 billion annually on military account at the present time. This corresponds to about one-half of the total gross capital formation throughout the world. It is at least two-thirds of—and according to some estimates, of the same order of magnitude as—the entire national income of all the under-developed countries.

168. It is important that countries, in preparing to disarm, should take stock of the various resources that disarmament would release for peaceful uses. In the major military powers, military production is highly concentrated in a few industry groups. In those countries that rely upon imports for their supplies of military goods or in which the major part of military expenditure is for the pay and subsistence of the armed forces, rather than for their equipment, the resources devoted to military purposes consist essentially of manpower and foreign exchange.

The peaceful use of released resources

169. There are so many competing claims for usefully employing the resources released by disarmament that the real problem is to establish a scale of priorities. The most urgent of these claims would undoubtedly already have been largely satisfied were it not for the armaments race.

170. Increased personal consumption might well absorb a large share of the released resources. A substantial portion of them, however, would be used for expansion of productive capacities because only such expansion can provide a firm basis for further increases in consumption. In the less developed countries, the utilization of released resources for capital formation must be considered vitally important.

171. Social investment is an important alternative both to private consumption and to industrial and agricultural investment. Its claims rest partly upon the clear urgency of the direct need for improved social

amenities, and partly upon the fact that growth of industrial and agricultural productivity is dependent upon developments in education, housing, health, and other fields.

172. The release of scientific and technical manpower would make it possible to encourage programmes of basic scientific research in fields which have hitherto been neglected. Disarmament would also open up possibilities for joint international ventures of an ambitious kind, such as the utilization of atomic energy for peaceful purposes, space research, the exploration of the Arctic and Antarctic for the benefit of mankind and projects to change the climates of large areas of the world.

173. Thus, though it would take active decisions by Governments in the light of national and international needs to set in motion the necessary programmes for employing the released resources, it seems abundantly clear that no country need fear a lack of useful employment opportunities for the resources that would become available to it through disarmament.

Impact on national production and employment

174. Disarmament would raise both general problems of maintaining the over-all level of economic activity and employment and specific problems in so far as manpower or productive capacity might require adaptation to non-military needs. In the economic life of all countries, shifts in the pattern of demand and in the allocation of productive resources are continually occurring. The reallocation of productive resources which would accompany disarmament is in many respects merely a special case of the phenomenon of economic growth.

175. The post-war conversion was a much larger one and involved a more rapid transfer of resources than total disarmament would require at present. Nevertheless, huge armies were quickly demobilized without a significant rise in unemployment in most countries. The pace of recovery, particularly of industrial output, was impressively rapid. During the post-war conversion, however, the major concern of economic policy was to restrain, rather than to maintain, over-all demand.

176. Much attention has already been given in the industrialized private enterprise economies to the methods by which total effective demand can be maintained. Monetary and fiscal policy could be used to offset the effect of a shortfall in total demand that might result from a decline in military expenditure to the extent that it were not offset by a rise in civil government expenditure. Bearing in mind that a substantial part of military expenditure would probably be replaced by other government- expenditure in most countries, it may be concluded that the maintenance of effective demand in the face of disarmament should not prove difficult.

177. For many under-developed countries, the effect of disarmament upon the industrial countries' demands for primary products, and thus on the export earnings of the primary producing countries, would be of great importance. So would the methods of dealing with the liquidation of strategic stockpiles.

178. In the centrally planned economies, the maintenance of effective demand while reducing military expenditure would be simply

a matter of the efficiency of planning techniques. In consequence, effective demand could be readily maintained, and the principal problems of conversion would concern the physical adaptation of plants producing armaments to the production of goods for civilian use.

Structural problems of conversion

179. Even with the successful maintenance of total effective demand during a period of disarmament, significant problems of adjustment would remain in specific sectors and areas of the economy. The resources now supplying military requirements could be adapted to peace-time needs partly by shifts within industries and plants. This might be a relatively easy procedure, in many cases involving little more than changes in designs, retooling, and minor adaptations of skills, particularly in plants and enterprises which already produce both military and civilian goods. Shifts between industries would necessitate new investment and acquisition of different types of skill by the working force. In the longer run disarmament would allow each country to raise the rate of investment and to adapt productive capacity more adequately to the needs of the population and to the requirements of economic growth, both in the private enterprise and the centrally planned economies.

180. Hypothetical studies on the assumption that military expenditure is replaced wholly by increases in expenditure on other kinds of goods and services suggest that in the event of very rapid disarmament some 6 or 7 per cent (including the armed forces) of the total labour force in the United States and 3½ to 4 per cent in the United Kingdom would have to find civilian instead of military employment or change their employment from one industry group to another. These shifts would be small if spread out over a number of years and would be greatly facilitated by the normal process of turnover. The higher the rate of growth of the economy, the easier the process of adaptation.

181. Under-developed countries generally have been meeting their requirements for military goods and services by imports, so that their disarmament would release foreign exchange rather than industrial workers. It would also free members of the forces, many with useful skills and training. Some of these could be usefully employed in the development of social capital. In some of the semi-industrialized countries, newly started basic industries could concentrate, without any transitional difficulty, on the manufacture of capital goods.

182. In the centrally planned economies, where productive capacity is usually fully utilized, it would be necessary to convert plants producing military equipment to production of durable consumer goods and of such investment goods as can be produced in them with only minor retooling. This could be done rapidly.

183. Some special problems would arise with regard to re-employment and training of manpower and reorientation of scientific research. While most members of the armed forces have received training that would fit them easily for civilian life, a special effort would have to be made to find suitable employment for the rest. The demobilization of the non-professional members of the armed forces would imply only

that the number of new entrants for that period would be augmented by this special factor.

184. In industries depending heavily on military orders, many of the employees possess a level of skill that should find gainful employment in other branches of production, so long as over-all effective demand is rising. Even so, there might be some special cases which would require special assistance to encourage the adaptation of skills to new jobs. The uneven geographical distribution of the activity based on military expenditure would give rise to a need for various forms of public and other assistance to facilitate readjustment.

185. The task of shifting scientific and technical personnel to non-military fields of research in some countries would be considerable. No reduction in the actual employment of scientific and technical personnel need be feared, however, because the demand for civilian research would increase rapidly.

Impact on international economic relations

186. Disarmament would be bound to have favourable effects on the development of international relations. The political *détente* that would accompany an international disarmament programme would in itself imply that nations were willing to reconsider their economic relations with one another. The relaxation of international tensions would provide a sound basis for reduction of trade barriers and for modification of existing trade agreements and trading practices. An important consequence of this would be a substantial increase in trade between the centrally planned economies and the rest of the world.

187. Since disarmament may be expected to result in an acceleration of economic growth, it should stimulate the growth of demand for primary production in general. Accelerated economic growth would be still more powerful in increasing total demand for manufactures. The over-all impact of disarmament on the trade of under-developed countries is likely to be favourable, not only because of the acceleration of economic growth but also because of the greatly expanded aid to be expected from the more advanced countries.

188. Some exports of primary products, such as petroleum, rubber and most metallic ores, depend significantly at present on direct and indirect demand generated by military purchases. Provided, however, that military expenditure were fully replaced by public and private non-military spending, the impact on over-all demand for these commodities would be only minor. There might, however, be instances in which declines in demand for particular commodities would cause appreciable difficulties. In these cases consideration should be given to special aid for the countries concerned, in the same way as for particular industries or areas within the principal disarming countries. For most other primary commodities, the reallocation of military expenditure to civilian use would probably bring about a net increase in demand.

189. During the conversion period changes in the level of aggregate economic activity associated with disarmament in the major industrial countries would be a major determinant of the level of

international trade. It is believed that significant fluctuations in the general level of international trade could be avoided, but it should nevertheless be realized that any failure to achieve this goal could have serious consequences. Regardless of the technique employed, no country should be allowed to suffer a disruption to its economic life, even temporarily, as a result of disarmament.

Effects on the volume and framework of aid for economic development

190. National efforts and international co-operation in the development of the under-developed countries have so far not brought about the desired acceleration of economic growth. A much larger volume of resources could be allocated to investment for productive development in these countries even if only a fraction of the resources currently devoted to military purposes were used in this way. Disarmament could thus bring about a marked increase in the rate of growth of real income in the poorer parts of the world.

191. Bilateral and multilateral programmes of aid each have their own particular advantages and disadvantages, but in so far as political circumstances have had any weight in determining the direction and form of aid, effective disarmament and the related lessening of international tensions should improve the prospects for more co-operative international action. Since repayment of loans granted on commercial terms may impose heavy burdens on the balances of payments of the under-developed countries, as large a proportion of economic aid as possible should take the form of grants or "soft" loans.

192. Because the competing claims in developed countries are also urgent there is a serious possibility that the financial resources released by disarmament might be rapidly absorbed by purely national aims. It is therefore desirable that an appropriate proportion of these resources should be allocated to international aid in its various forms simultaneously with their use for domestic purposes.

193. Foreign aid, however, can play only a supplementary role in the development of these countries and the responsibility for initiation and intensification of development efforts would continue to lie entirely with the Governments and peoples concerned.

Some social consequences

194. In a disarmed world, a general improvement could be expected in the level of living, including an increase in leisure. With the end of the armaments race, Governments would accord social objectives a higher priority. The psychological, moral and material evils of compulsory military service and of stationing troops away from their homes would be avoided; so would the danger that security considerations and the armed forces might play an extensive role in forming the values of the community. Scientific co-operation and the arts would benefit from an extension of international exchanges.

Conclusion

195. The Consultative Group is unanimously of the opinion that all the problems and difficulties of transition connected with disarmament could be met by appropriate national and international measures. There should thus be no doubt that the diversion to peaceful purposes of the resources now in military use could be accomplished to the benefit of all countries and lead to the improvement of world economic and social conditions. The achievement of general and complete disarmament would be an unqualified blessing to all mankind.

ANNEXES

Annex 1

TERMS OF REFERENCE

RESOLUTION 1516 (XV), ADOPTED BY THE GENERAL ASSEMBLY

Economic and social consequences of disarmament

The General Assembly,

Recalling its resolution 1378 (XIV) of 20 November 1959,

Conscious that the impact of disarmament is likely to set in motion great changes in the domestic economies of States and in international economic relations, as a result of the progressive diversion of human and material resources from military to peaceful purposes,

Recognizing that effective action at the national and international levels will need to be taken to make use of material and human resources becoming available as a consequence of disarmament, in order to promote social progress and better standards of living in the world,

Bearing in mind the importance of comprehensive and systematic studies in this field to enable Member States, especially those which are under-developed, to make the necessary economic and social adjustments in the event of disarmament,

Convinced that it is both timely and desirable to undertake such studies,

1. *Requests* the Secretary-General to examine:

(*a*) The national economic and social consequences of disarmament in countries with different economic systems and at different stages of economic development, including, in particular, the problems of replacing military expenditures with alternative private and public civil expenditures so as to maintain effective demand and to absorb the human and material resources released from military uses;

(*b*) The possible development of structural imbalances in national economies as a result of the cessation of capital investment in armaments industries, and the adoption of possible corrective measures to prevent such imbalances, including expanded capital assistance to the under-developed countries;

(*c*) The impact of disarmament on international economic relations, including its effect on world trade and especially on the trade of under-developed countries;

(*d*) The utilization of resources released by disarmament for the purpose of economic and social development, in particular of the under-developed countries;

2. *Recommends* that the Secretary-General should conduct the proposed examination with the assistance of expert consultants to be appointed by him with due regard to their qualifications and to the need of geographical representation and intimate knowledge of countries with different economic systems and at different stages of economic development;

3. *Appeals* to Governments of Member States to give full co-operation to the Secretary-General in the fulfilment of the task entrusted to him;

4. *Requests* the Secretary-General to submit a preliminary report on the results of the examination to the Economic and Social Council at its thirty-third session;[a]

5. *Requests* the Economic and Social Council to transmit the report with its views to the General Assembly at its seventeenth session.

948th plenary meeting,
15 December 1960.

Annex 2

Official military expenditure statistics

1. Information concerning military expenditure is contained in the official public accounts of central Governments and the national accounts dealing with gross national or material product and related data. Countries differ, however, in their definitions of military expenditure, and information concerning their methods of classification is commonly not available. It is therefore impossible in many instances to determine the content of the official statistics from an economic and social point of view. Some expenditures that would be considered as military from this viewpoint may be excluded from the official data, while others that would be considered as non-military may be included. In addition, there are commonly differences within countries in the basis of pricing of military output as compared with that of the output of the rest of the economy. These differences alone, even if the coverage of the expenditure statistics were appropriate, would make it impossible to indicate with any precision the proportion of resources devoted to military purposes. Furthermore, different countries have different economic structures and patterns of prices, so that in comparing countries one would obtain different ratios of military expenditure to national product and its components merely from using the different price patterns. For all these reasons, official statistics of military expenditure have only limited value as a basis for measuring the economic burden imposed by the armaments race.

2. The following tables include the most readily available official statistics on military expenditure and compare these with domestic product and fixed capital formation. These three tables cover industrial private enterprise, under-developed and centrally planned countries respectively. In accordance with usual statistical practice, the concept of domestic product in the first two tables is different from that in the third table. In tables 2-1 and 2-2, domestic product includes output originating in both "material production" and services. In table 2-3, domestic product includes output originating in material production only. A further difference is that domestic product in tables 2-1 and 2-2 is gross, depreciation not having been deducted from gross investment or income, while domestic product in table 2-3 is net of depreciation. Accordingly, military expenditure is compared with a more broadly defined measure of product in tables 2-1 and 2-2 than in table 2-3.

[a] In response to a suggestion by the Group of Experts, made at their first session, the Economic and Social Council agreed to defer consideration of this item to its thirty-fourth session.

Table 2-1

INDUSTRIAL PRIVATE PNTERPRISE COUNTRIES: MILITARY EXPENDITURE AS STATED IN BUDGET ACCOUNTS, COMPARED WITH OTHER STATISTICS, 1957-1959[a]

Country, period and currency unit	*Military budget expenditure*	*Gross domestic product*[a]	*Gross domestic fixed capital formation*	*Military budget expenditure as percentage of*	
				Gross domestic product	*Gross domestic fixed capital formation*
AMERICA, NORTH					
Canada (million dollars):					
1957	1,668.5[b]	32,347.0	8,590.0		
1958	1,424.7[b]	33,186.0	8,292.0		
1959	1,506.1[b]	35,110.0	8,456.0		
Average 1957-1959..	1,533.1[b]	33,548.0	8,446.0	4.6	18.4
United States (million dollars):					
1957	43,270.0[d]	441,764.0	76,981.0[e]		
1958	44,142.0[d]	443,869.0	72,270.0[e]		
1959	46,426.0[d]	481,253.0	80,374.0[e]		
Average 1957-1959..	44,613.0[d]	455,628.0	76,542.0[e]	9.8	58.3[e]
ASIA					
Japan[b] (billion yen):					
1957	176.0	10,135.8	2,727.0[c]		
1958	178.0	10,414.8	2,772.8[c]		
1959	189.0	12,561.4	3,509.6[c]		
Average 1957-1959..	181.0	11,037.3	3,003.1[c]	1.6	6.0[c]
EUROPE					
Austria (million schillings):					
1957	1,714.0	121,800.0[f]	27,000.0		
1958	1,986.0	126,700.0[f]	28,400.0		
1959	1,989.0	134,600.0[f]	30,700.0		
Average 1957-1959..	1,896.0	127,700.0[f]	28,700.0	1.5[f]	6.6
Belgium (million francs):					
1957	16,638.0	550,100.0	95,900.0		
1958	16,433.0	547,600.0	91,600.0		
1959	18,047.0	565,700.0	95,400.0		
Average 1957-1959..	17,039.0	554,467.0	94,300.0	3.1	18.1
Denmark (million kroner):					
1957	941.0[b]	32,939.0	5,705.0		
1958	973.0[b]	34,374.0	6,020.0		
1959	1,015.0[b]	38,100.0	7,025.0		
Average 1957-1959..	976.0[b]	35,138.0	6,250.0	2.8	15.6

Table 2-1 (continued)

Country, period and currency unit	*Military budget expenditure*	*Gross domestic product*[a]	*Gross domestic fixed capital formation*	*Military budget expenditure as percentage of*	
				Gross domestic product	*Gross domestic fixed capital formation*
EUROPE (*continued*)					
Finland (billion markkaa):					
1957	18.4	1,112.0	294.5		
1958	20.6	1,186.3	303.0		
1959	22.4	1,259.6	331.2		
Average 1957-1959..	20.5	1,186.0	309.6	1.7	6.6
France (million new francs):					
1957	14,120.0	211,200.0	39,100.0		
1958	14,190.0	239,100.0	43,100.0		
1959	15,830.0	258,400.0	45,100.0		
Average 1957-1959..	14,713.0	236,200.0	42,433.0	6.2	34.7
Germany (*Federal Republic*) (million Deutche mark):					
1957	7,547.0[b]	214,200.0	46,650.0		
1958	8,824.0[b]	228,510.0	50,350.0		
1959	9,403.0[b]	247,520.0	57,200.0		
Average 1957-1959..	8,591.0[b]	230,077.0	51,400.0	3.7	16.7
Ireland (million pounds):					
1957	8.1[b]	545.0	77.2	1.5	10.5
Italy (billion lire):					
1957	496.1[d]	15,638.0	3,434.0		
1958	543.6[d]	16,656.0	3,481.0		
1959	548.9[d]	17,656.0	3,730.0		
Average 1957-1959..	529.5[d]	16,650.0	3,548.0	3.2	14.9
Netherlands (million guilders):					
1957	1,725.0	35,120.0	9,044.0		
1958	1,546.0	35,830.0	8,210.0		
1959	1,438.0	38,170.0	9,120.0		
Average 1957-1959..	1,570.0	36,373.0	8,791.0	4.3	17.9
Norway (million kroner):					
1957	986.6[d]	28,826.0	8,187.0		
1958	967.8[d]	28,645.0	9,067.0		
1959	1,058.7[d]	30,294.0	8,799.0		
Average 1957-1959..	1,004.4[d]	29,255.0	8,684.0	3.4	11.6

Table 2-1 (continued)

Country, period and currency unit	*Military budget expenditure*	*Gross domestic product*[a]	*Gross domestic fixed capital formation*	*Military budget expenditure as percentage of*	
				Gross domestic product	*Gross domestic fixed capital formation*
EUROPE (*continued*)					
Sweden (million kronor):					
1957	2,450.0[d]	52,558.0	10,605.0		
1958	2,663.0[d]	54,825.0	11,615.0		
1959	2,748.0[d]	58,386.0	12,926.0		
Average 1957-1959..	2,620.0[d]	55,256.0	11,715.0	4.7	22.4
Switzerland (million francs):					
1957	930.1	30,800.0	7,700.0[g]		
1958	1,019.1	32,000.0	7,300.0[g]		
1959	972.4	33,400.0	8,000.0[g]		
Average 1957-1959..	973.9	32,067.0	7,667.0[g]	3.0	12.7[g]
United Kingdom (million pounds):					
1957	1,429.7[b]	21,719.0	3,340.0		
1958	1,467.7[b]	22,623.0	3,476.0		
1959	1,504.0[b]	23,741.0	3,631.0		
Average 1957-1959..	1,467.1[b]	22,694.0	3,482.0	6.5	42.1
OCEANIA					
Australia[d] (million pounds):					
1957	183.4	5,751.0	1,408.0[h]		
1958	172.0	5,829.0	1,522.0[h]		
1959	181.9	6,250.0	1,613.0[h]		
Average 1957-1959..	179.1	5,943.0	1,514.0[h]	3.0	11.8[h]
New Zealand[b] (million pounds):					
1957	24.2	1,096.0	245.0		
1958	25.5	1,154.0	242.0		
1959	27.3	1,247.0	251.0		
Average 1957-1959..	25.7	1,166.0	246.0	2.2	10.4

SOURCE: United Nations, *Statistical Yearbook* and *Yearbook of National Accounts Statistics*, various issues.

[a] For differences between the concept of domestic product used in tables 2-1 and 2-2, as compared with table 2-3, see para. 2 of this annex.

[b] Fiscal years beginning 1 April.

[c] Including increase in stocks of local government enterprises.

[d] Fiscal year ending 30 June.

[e] Excluding government expenditure on equipment.

[f] Gross national product.

[g] Including increase in stocks.

[h] Including expenditure on maintenance of roads and expenditure on motor vehicles for personal use.

Table 2-2

UNDER-DEVELOPED PRIVATE ENTERPRISE COUNTRIES: MILITARY EXPENDITURE, AS STATED IN BUDGET ACCOUNTS, COMPARED WITH OTHER STATISTICS, 1957-1959[a]

Country, period and currency unit	*Military budget expenditure*	*Gross domestic product*[a]	*Gross domestic fixed capital formation*	*Military budget expenditure as percentage of*	
				Gross domestic product	*Gross domestic fixed capital formation*
AFRICA					
Sudan[b] (million pounds):					
1957	3.4	...	26.2		
1958	4.9	...	42.8		
1959	5.0	...	38.2		
Average 1957-1959..	4.4	...	35.7	...	12.3
Union of South Africa (million pounds):					
1957	18.1[c]	2,345.0	485.0		
1958	19.6[c]	2,411.0	544.0		
1959	21.8[c]	2,518.0	525.0		
Average 1957-1959..	19.8[c]	2,425.0	518.0	0.8	3.8
AMERICA, LATIN					
Argentina (million pesos):					
1958	6,924.8[d]	318,400.0	65,610.0		
1959	15,589.4[d]	604,547.0	107,985.0		
Average 1958-1959..	11,257.1[d]	461,474.0	86,798.0	2.4	13.0
Brazil (billion cruzeiros):					
1957	34.6	1,063.1	124.5		
1958	40.8	1,299.3	165.6		
1959	41.1	1,837.4	228.5		
Average 1957-1959..	38.8	1,399.9	172.9	2.8	22.4
Chile (million escudos):					
1957	73.1	2,252.7[e]	247.0		
1958	82.2	2,971.8[e]	309.9		
1959	91.1	4,163.0[e]	405.0		
Average 1957-1959..	82.1	3,129.2[e]	320.6	2.6[e]	25.6
Colombia (million pesos):					
1957	288.6	17,651.0	2,630.0		
1958	306.4	20,477.0	3,350.0		
1959	274.7	22,995.0	3,919.0		
Average 1957-1959..	289.9	20,374.0	3,300.0	1.4	8.8
Costa Rica (million colones):					
1957	13.4	2,302.7[f]	434.8		
1958	12.8	2,465.0[f]	404.0		
1959	13.1	2,529.8[f]	451.4		
Average 1957-1959..	13.1	2,432.5[f]	430.1	0.5[f]	3.0

Table 2-2 (continued)

Country, period and currency unit	*Military budget expenditure*	*Gross domestic product*[a]	*Gross domestic fixed capital formation*	*Military budget expenditure as percentage of*	
				Gross domestic product	*Gross domestic fixed capital formation*
AMERICA, LATIN (*continued*)					
Ecuador (million sucres):					
1957	289.0	12,007.0	1,561.0		
1958	282.0	12,355.0	1,586.0		
1959	273.0	12,424.0	1,553.0	2.2	17.6
El Salvador (million colones):					
1957	19.2	1,218.2[g]	...		
1958	19.0	1,249.9[g]	...		
1959	17.0	1,226.7[g]	...		
Average 1957-1959..	18.4	1,231.6[g]	...	1.5[g]	...
Guatemala (million quetzales):					
1957	8.9[b]	652.5	97.5[h]		
1958	9.7[b]	647.0	97.4[h]		
1959	9.9[b]	659.1	84.1[h]		
Average 1957-1959..	9.5[b]	652.9	93.0[h]	1.5	10.2[h]
Honduras (million lempiras):					
1957	8.9	688.3	94.1	1.3	9.5
Mexico (million pesos):					
1957	791.7	103,000.0[i]	15,544.0		
1958	861.5	114,000.0[i]	16,282.0		
1959	971.0	122,000.0[i]	18,066.0		
Average 1957-1959..	874.7	113,000.0[i]	16,631.0	0.8[i]	5.3
Peru (million soles):					
1957	1,083.8	34,342.0[e]	9,149.0		
1958	1,265.4	37,691.0[e]	8,643.0		
Average 1957-1958..	1,174.6	36,016.0[e]	8,896.0	3.3[e]	13.2
Venezuela (million bolivares):					
1957	419.3[b]	23,847.0	5,950.0[j]		
1958	572.0[b]	24,585.0	5,964.0[j]		
1959	630.2[b]	24,904.0	6,721.0[j]		
Average 1957-1959..	540.5[b]	24,445.0	6,212.0[j]	2.2	8.7[j]
ASIA					
Burma[k] (million kyats):					
1957	368.5	5,429.0	1,018.0		
1958	407.6	5,299.0	1,135.0		
1959	403.3	5,493.0	1,015.0		
Average 1957-1959..	393.1	5,407.0	1,056.0	7.3	37.2
Cambodia:					
1957	...	...	...	4.0	...

Table 2-2 (continued)

Country, period and currency unit	*Military budget expenditure*	*Gross domestic product*[a]	*Gross domestic fixed capital formation*	*Military budget expenditure as percentage of*	
				Gross domestic product	*Gross domestic fixed capital formation*
ASIA (*continued*)					
Ceylon (million rupees):					
1957	39.9[k]	5,382.0	660.6		
1958	64.1[k]	5,662.6	682.6		
1959	72.4[k]	6,032.9	805.5		
Average 1957-1959..	58.8[k]	5,692.5	716.2	1.0	8.2
China (Taiwan):					
Average 1957-1959..	...	...	...	10.8[l]	...
Federation of Malaya (million dollars):					
1957	160.6	5,310.0	610.0	3.0	26.3
India[c] (million rupees):					
1957	2,828.0	114,100.0[m]	...		
1958	2,787.0	124,800.0[m]	...		
Average 1957-1958..	2,808.0	119,450.0[m]	...	2.4[m]	...
Indonesia (million rupiah):					
1957	6,052.0	171,000.0[n]	7,600.0		
1958	11,085.0	180,200.0[n]	8,299.0		
1959	8,788.0	210,000.0[n]	8,895.0		
Average 1957-1959..	8,642.0	187,100.0[n]	8,265.0	4.6[n]	104.6
Israel (million pounds):					
1957	197.1[c]	3,054.0[o]	829.0[j]		
1958	217.1[c]	3,501.0[o]	897.0[j]		
1959	251.1[c]	4,022.0[o]	961.0[j]		
Average 1957-1959..	221.8[c]	3,526.0[o]	896.0[j]	6.3[o]	24.8[j]
Korea (Republic of) (billion hwan):					
1957	112.9	1,615.7	200.9		
1958	127.8	1,706.8	219.4		
1959	141.1	1,840.0	265.0		
Average 1957-1959..	127.3	1,720.8	228.4	7.4	57.8
Lebanon (million pounds):					
1957	39.1	1,503.0[m]	...		
1958	45.6	1,325.0[m]	...		
Average 1957-1958..	42.4	1,414.0[m]	...	3.0[m]	...
Pakistan:					
Average 1957-1958..	...	...	...	3.0[l]	...
Philippines (million pesos):					
1957	157.0[b]	10,119.0	890.0		
1958	181.1[b]	10,666.0	851.0		
1959	183.6[b]	11,161.0	901.0		
Average 1957-1959..	173.9[b]	10,649.0	881.0	1.6	19.7

Table 2-2 (continued)

Country, period and currency unit	*Military budget expenditure*	*Gross domestic product*[a]	*Gross domestic fixed capital formation*	*Military budget expenditure as percentage of*	
				Gross domestic product	*Gross domestic fixed capital formation*
ASIA (*continued*)					
Syrian Arab Republic (million pounds):					
1957	140.0	2,514.0[p]	266.0	5.6	52.6
Thailand (million baht):					
1957	1,566.7	44,670.0	6,434.0	3.8	24.4
1958	1,389.7	45,458.0	6,669.0		
1959	1,439.0	49,010.0	7,334.0		
Average 1957-1959..	1,465.1	46,379.0	6,812.0	3.2	21.5
Turkey (million lires):					
1957	959.1[q]	30,668.0	4,033.0		
1958	956.2[q]	38,652.0	5,278.0		
1959	1,146.1[q]	46,640.0	7,463.0		
Average 1957-1959..	1,020.5[q]	38,653.0	5,591.0	2.6	18.3
EUROPE					
Greece (million drachmas):					
1957	4,500.0	80,772.0	12,531.0		
1958	4,560.0	85,750.0	15,320.0		
1959	4,590.0	88,515.0	18,470.0		
Average 1957-1959..	4,550.0	85,012.0	15.440.0	5.4	29.5
Portugal (million escudos):					
1957	1,754.0	57,396.0	8,808.0		
1958	1,845.6	59,017.0	9,625.0		
Average 1957-1958..	1,799.8	58,206.0	9,216.0	3.1	19.5
Spain (million pesetas):					
1957	10,881.0	437,200.0[l]	...	2.5[l]	...

SOURCE: United Nations, *Statistical Yearbook* and *Yearbook of National Accounts Statistics*, various issues, except for Cambodia, China (Taiwan) and Pakistan, the source for which is United Nations, *Economic Survey of Asia and the Far East*, 1960 (Sales No.: 61.II.F.1), table 32, p. 83.

[a] For differences between the concept of domestic product used in tables 2-1 and 2-2, as compared with table 2-3, see para. 2 of this annex.
[b] Fiscal year ending 30 June.
[c] Fiscal year beginning 1 April.
[d] Fiscal year ending 31 October.
[e] Including a statistical discrepancy.
[f] Including current international transfers.
[g] At market prices of 1950.
[h] Including increase in stocks.
[i] Gross national product.
[j] Including change in stock of livestock held on farms.
[k] Fiscal year ending 30 September.
[l] Ratio to net national product.
[m] Net domestic product at factor cost.
[n] Gross domestic product at factor cost.
[o] Including interest on public debt.
[p] Net domestic product at factor cost of 1956.
[q] Year beginning 1 March.

Table 2-3

CENTRALLY PLANNED COUNTRIES: MILITARY EXPENDITURE AS STATED IN BUDGET ACCOUNTS, COMPARED WITH OTHER STATISTICS, 1957-1959[a]

Country, period and currency unit	*Military budget expenditure*	*Net domestic product*[a]	*Gross fixed investment*[b]	*Military budget expenditure as percentage of*	
				Net domestic product	*Gross fixed investment*
Bulgaria (million leva):					
1957	1,540	32,089	5,172		
1958	1,729	34,863	6,321		
1959	1,628	42,198	10,103		
Average 1957-1959	1,632	36,383	7,199	4.5	22.7
China (mainland) (million yuan):					
1957	5,510	93,500[c]	12,400[c]		
1958	5,000	125,400[c]	21,400[c]		
1959	5,800	152,500[c]	24,800[c]		
Average 1957-1959	5,437	123,800[c]	19,533[c]	4.4[c]	27.8[c]
Czechoslovakia (million korun):					
1957	9,319	...	29,090		
1958	8,933	...	31,470		
1959	8,789	...	36,094		
Average 1957-1959	9,014	...	32,218	...	28.0
Eastern Germany (million marks):					
1958	1,650	64,899	9,798	2.5	16.8
Hungary (million forints):					
1957	1,912	107,310	11,100		
1959	2,500	126,500	30,500		
Average 1957 and 1959	2,206	116,905	20,800	1.9	10.6
Poland (million zloty):					
1957	10,136	301,400	47,356		
1958	11,220	321,300	52,106		
1959	14,259	345,800	61,653		
Average 1957-1959	11,872	322,833	53,705	3.7	22.1
Romania (million lei):					
1957	3,817	...	13,966[c]		
1958	3,597	...	15,234[d]		
1959	3,446	...	17,803[d]		
Average 1957-1959	3,620	...	15,668[d]	...	23.1[d]
Soviet Union (million roubles):[e]					
1957	95,000	1,258,000[f]	237,800		
1958	93,600	1,357,000[f]	273,580		
1959	93,700	1,466,000[f]	309,330		
Average 1957-1959	94,100	1,360,333[f]	273,570	6.9[f]	34.4

Table 2-3 (continued)

Country, period and currency unit	*Military budget expenditure*	*Net domestic product*[a]	*Gross fixed investment*[b]	*Military budget expenditure as percentage of*	
				Net domestic product	*Gross fixed investment*
Yugoslavia (million dinars):					
1957	158,300	1,829,400	550,000		
1958	178,500	1,833,600	587,000		
1959	195,600	2,269,000	750,000		
Average 1957-1959.....	177,500	1,977,300	639,000	9.0	27.8

SOURCE: Division of General Economic Research and Policies of the United Nations Secretariat, based on official sources.

[a] For differences between the concept of domestic product used in tables 2-1 and 2-2, as compared with table 2-3, see para. 2 of this annex.

[b] In state and co-operative sector, excluding capital repairs. Figures for China (mainland) pertain only to budgetary fixed investment; figures for Eastern Germany exclude co-operative investment from own resources.

[c] Product and investment in 1952 prices.

[d] Investment in 1959 prices.

[e] Before exchange of 1961.

[f] Product in 1960 prices.

Annex 3

ANALYTICAL TABLES ILLUSTRATING CERTAIN HYPOTHETICAL ECONOMIC CHANGES DURING DISARMAMENT

TABLES FOR CHAPTERS 4 AND 5

Table 3-1

CHANGES IN EMPLOYMENT IN THE UNITED STATES FOLLOWING A REALLOCATION[a] OF MILITARY EXPENDITURE, 1958

Production sectors	*Change in employment in man years (thousands)*	*As percentage of employment in the production sector*
(a) *Showing decline*		
Armed forces	—2,532	100.0
Civilian employment of military agencies	—791	100.0
Aircraft and parts	—705	93.1
Radio	—172	31.6
Ordnance	—142	100.0
Ships and boats	—137	57.1
Instruments	—31	12.6
All others	—133	...
TOTAL DECLINE	*—4,642*	...
(b) *Showing increase*		
Non-military government service and domestic service	1,196	
Trade	752	7.9
Professional and service	565	7.6
Restaurants, hotels, amusements	244	9.4
Banking, finance	204	8.6
Business services	136	5.2
Railroads, trucking	64	3.5
Automobile and other repairs	28	7.9
Other transportation	16	3.1
Construction	188	7.1
Food products	77	8.0
Textile mill	53	6.4
Lumber, wood products	50	5.1
Motor vehicles	34	5.3
Livestock, poultry	31	7.3
Non-metallic minerals	27	4.2
All others	344	...
TOTAL INCREASE	*4,014*	...

SOURCE: Based on data in W. Leontief and M. Hoffenberg, "The Economic Effects of Disarmament", *Scientific American*, April 1961.

[a] The estimates relate to reallocation of total military purchases to each demand category proportionally to its 1958 share.

Table 3-2

INFLUENCE OF DISARMAMENT[a] ON VARIOUS INDUSTRIAL SECTORS IN THE UNITED KINGDOM, 1959

Industrial sector	*Changes in net output*		
		As percentage of	
	£ million 1959	*Gross national product*	*Net output of sector*
I. *Showing declines*			
Military services	—547	—2.7	—100.0
Ships, aircraft, etc.	—124	—0.6	—19.8
TOTAL	—671		

Table 3-2 (continued)

Industrial sector	*Changes in net output* £ million 1959	*As percentage of* Gross national product	*As percentage of* Net output of sector
II. *Showing expansion*			
Distribution	126	0.3	4.9
Transport	42	0.2	2.6
Other services	24	0.3	0.5
Engineering	96	0.5	4.6
Building	84	0.4	7.1
Motors	59	0.3	13.9
Textiles	47	0.3	8.7
Metals	43	0.2	6.4
Coal, etc.	38	0.2	4.1
Chemicals	33	0.1	5.2
Food	33	0.2	4.0
Agriculture	30	0.2	3.5
Other manufactures	27	0.2	3.5
Clothing	20	0.1	6.0
Gas, water, electricity	19	0.1	3.5
Wood	11	0.1	5.6
TOTAL	732		

SOURCE: Unpublished study by the University of Cambridge, Department of Applied Economics.

[a] Assuming that armament expenditure is distributed equally among personal consumption, capital formation and foreign aid.

Table 3-3

DIRECT AND INDIRECT MILITARY DEMAND FOR SELECTED RAW MATERIALS

(*As percentage of their total world supply 1958 and 1959*)

	1958 U.S. military demand[a]		*Estimated aggregate military demand of industrial countries*[b]	
	1958	*1959*	*1958*	*1959*
	Column 1	*Column 2*	*Column 3*	*Column 4*
Crude Petroleum	4.5	4.1	8.9	8.3
Natural rubber (crude)	1.5	1.4	3.0	2.9
Metallic ores:				
Copper	7.8	7.4	15.7	14.7
Nickel	6.0	4.8	12.0	9.5
Tin	4.9	4.7	9.8	9.3
Lead and zinc	4.7	4.7	9.4	9.4
Molybdenum	4.2	3.4	8.3	6.8
Bauxite	3.5	3.3	7.1	6.6
Iron ore	2.6	2.5	5.3	4.9
Manganese	1.3	1.3	2.7	2.6
Chromite	1.1	1.1	2.3	2.2

SOURCES AND METHODS: Direct and indirect military demand for raw material was computed from the worksheets for "The Economic Effects of Disarmament"

(*Continued on p. 66*)

Table 3-3 (footnotes, continued)

(by W. W. Leontief and Marvin Hoffenberg, *Scientific American*, April, 1961) obtained from the Harvard Economics Research Project. World supplies of natural rubber are from *Rubber Statistical Bulletin*, 16:2 (November 1961), p. 2. World supplies of mineral are from U.S. Department of the Interior, *Minerals Yearbook*, 1959, vol. I, pp. 124, 125.

[a] Generated by $41,585 million of goods and services purchased under the U.S. military budget of 1958.

[b] As a rough approximation, assumed to be equal to twice the U.S. military expenditure.

Table 3-4

CHANGE IN WORLD DEMAND FOR SELECTED RAW MATERIALS AFTER PROPORTIONAL REALLOCATION OF MILITARY PURCHASES TO OTHER DEMAND CATEGORIES

(*As percentage of world supply, 1958 and 1959*)

Item	*After reallocating 1958 United States military purchases*[a]		*After reallocating 1958 military purchases of industrial countries*[b]	
	1958	*1959*	*1958*	*1959*
Crude petroleum	—0.09	—0.08	—0.18	—0.16
Natural rubber (crude)	0.05	0.05	0.10	0.09
Metallic ores:				
Copper	—0.96	—0.90	—1.92	—1.81
Nickel	—0.76	—0.60	—1.51	—1.21
Tin	—0.33	—0.32	—0.67	—0.63
Lead and zinc	—0.32	—0.32	—0.64	—0.64
Molybdenum	—0.06	—0.05	—0.11	—0.09
Bauxite	—0.52	—0.48	—1.04	—0.96
Iron ore	—0.04	—0.03	—0.07	—0.07
Manganese	—0.02	—0.02	—0.04	—0.04
Chromite	—0.02	—0.02	—0.03	—0.03

SOURCE: See table 3-3. The figures in this table were derived by multiplying the appropriate entries in table 3-3 by those in column 2 of W. Leontief and M. Hoffenberg, op. cit., table 8.

[a] Equal to $41,585,000,000.

[b] Assumed equal to twice the United States military expenditure.

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